BARCO DATA 8200

R9001250

OWNER'S MANUAL

BARCO

BARCO PROJECTION SYSTEMS

BARCO DATA 8200

R9001250

OWNER'S MANUAL

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Federal communication commission (FCC statement)

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Instructions to the user :

if this equipment does cause interference to radio or television reception, the user may try to correct the interference by one or more of the following measures :

- Re-orientation of the receiving antenna for the radio or television.
- Relocate the equipment with respect to the receiver.
- Plug the equipment into a different outlet so that the equipment and receiver are on different branch circuits.
• Fasten cables connectors to the equipment by mounting screws.

Note :
The use of shielded cables is required to comply within the limits of Part15 of FCC rules and EN55022.

Due to constant research, the information in this manual is subject to change without notice.

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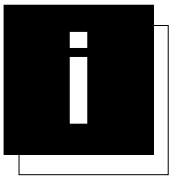

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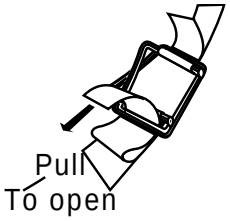
1 UNPACKING AND DIMENSIONS

Unpacking

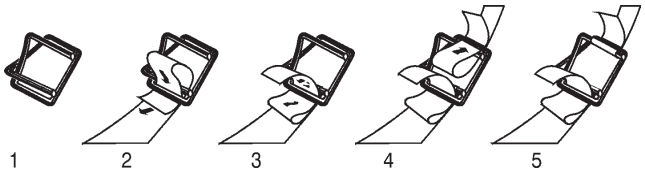
To open the banding, pull on the clip as shown in the first drawing.



Take the projector out of its shipping carton and place it on a table.
For transportation, the projector is mounted on a wooden board with 3 bolts. Use a 13 mm wrench to remove these bolts.
When using the projector as a table mounted configuration, always mount the 3 supporting feet (see drawing below). These feet are mounted on the same wooden board. Each foot contains one metal part and two plastic parts. To remove the feed, first turn out both plastic parts. To remove the metal parts from the board, remove the retaining bolts. Save these bolts because these bolts must be used to mount the feet to the projector. Mount first the metal parts with the removed bolts and turn in then both plastic parts to finish the feet.

Warning : To prevent overheating of the projector as table mounted, always remove the wooden board and turn in the 3 supporting feet to allow air circulation via the built-in dust filter at the bottom.

Save the original shipping carton and packing material, they will be necessary if you ever have to ship your projector. For maximum protection, repack your projector as it was originally packed at the factory.

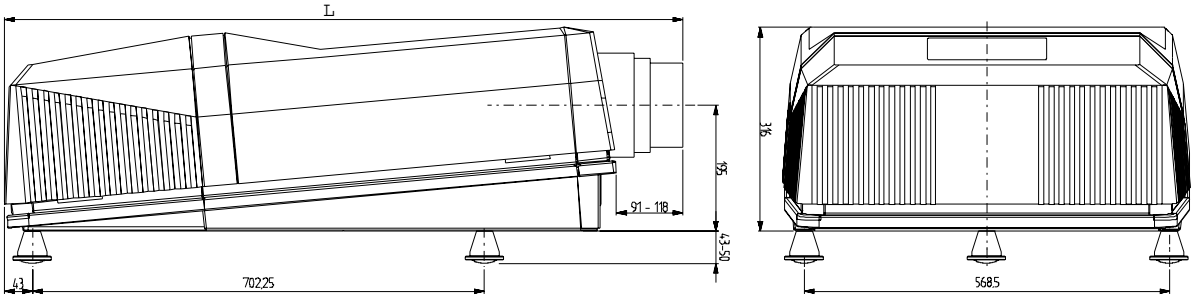


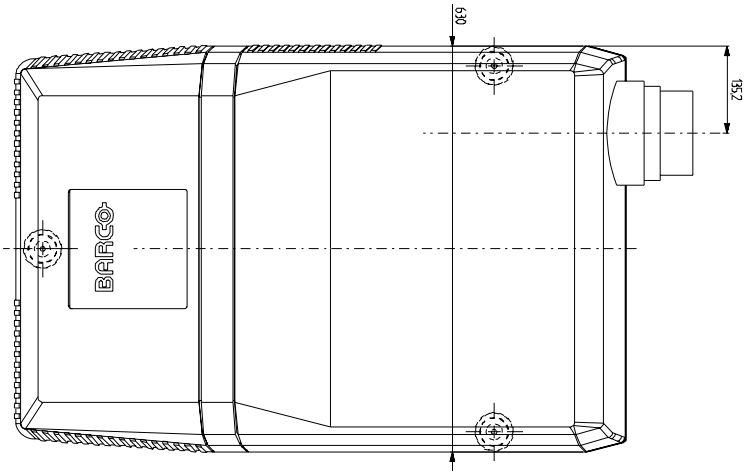
Contents of the complete unit (box) :

- 1 BARCODATA 8200 (weight : 69,9 kg)
- 1 remote control unit RCU + 9V battery
- 1 power cable with outlet plug type CEE7.
- 1 owner's manual
- 1 safety manual
- 3 supporting feet (consists of 3 parts)

Projector dimensions

(units : mm)
25.4 mm = 1"





Some examples of lenses :

Name lens (*)	Lmin mm (inch)	Lmax mm (inch)
HD(1.2:1)	1072 (42.20)	1087 (42.79)
HD(2.2:1)	1043 (41.06)	1070 (42.12)
HD(3.3:1)	1017 (40.04)	1072 (42.20)
HD(4.0:1)	1022 (40.24)	1162 (45.75)
HD(5:1)	1082 (42.60)	1202 (47.32)
HD(7:1)	1252 (49.29)	1372 (54.02)
HD(1.5-3:1)	1252 (49.29)	1355 (53.35)
HD(3-5.3:1)		

(*) More info about lenses, see appendix B.

Battery installation in the RCU.

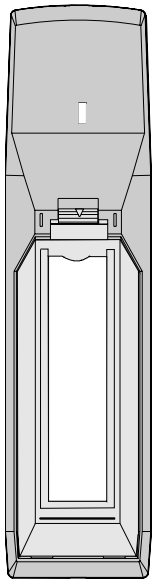


fig.1

A battery (not yet installed to save the battery life time) is delivered inside the plastic bag with the power cord. To install the battery, remove the battery cover on the backside of the remote control by pushing the indicated handle a little to the bottom of the RCU. Lift up the top side of the cover at the same time (fig. 1).

Insert the new 9 V battery (type E-block or equivalent) in the lower compartment and connect the battery to the contact plate.
Insert the battery into the lower compartment and put the cover back.
Note : projector address has to be programmed on the RCU before using the RCU (see chapter 'Controlling').

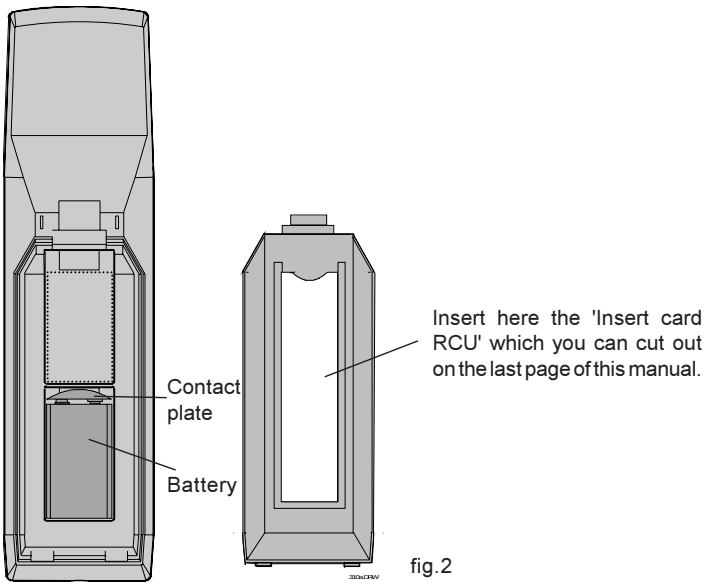


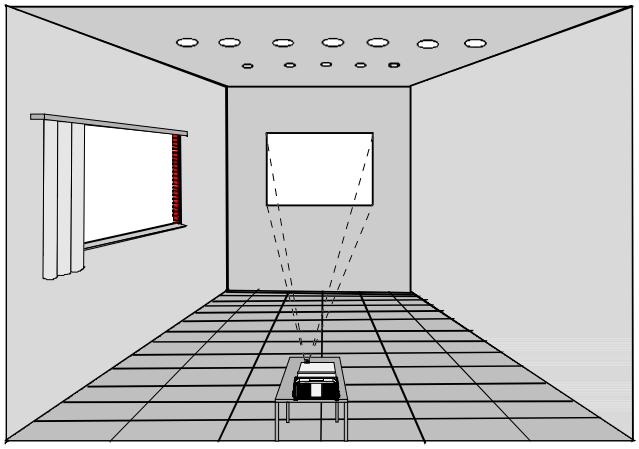
fig.2

2 INSTALLATION GUIDELINES

Installation guidelines

Careful consideration of things as image size, ambient light level, projector placement and type of screen to use are critical to the optimum use of the projection system.

Max. ambient temperature : 40 °C.
Min. ambient temperature : 0 °C.
The projector will not operate if ambient air temperature falls outside this range (0°C- 40°C).

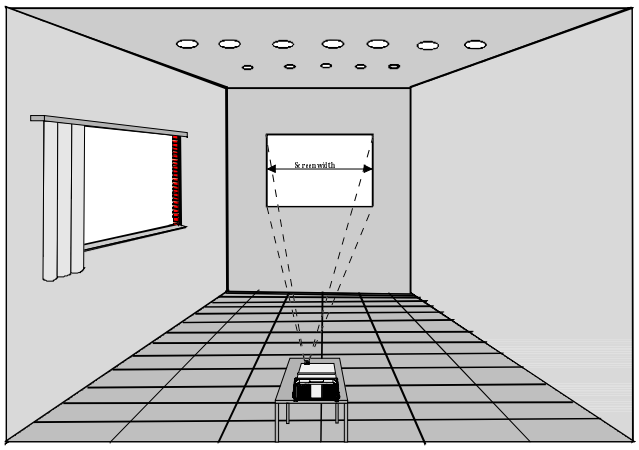


* Environment

Do not install the projection system in a site near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust or humidity. Be aware that room heat rises to the ceiling; check that temperature near the installation site is not excessive.

* What about ambient light ?

The ambient light level of any room is made up of direct or indirect sunlight and the light fixtures in the room. The amount of ambient light will determine how bright the image will appear. So, avoid direct light on the screen.
Windows that face the screen should be covered by opaque drapery while the set is being viewed. It is desirable to install the projecting system in a room whose walls and floor are of non-reflecting material. The use of recessed ceiling lights and a method of dimming those lights to an acceptable level is also important. Too much ambient light results in a 'wash out' of the projected image. That appears as less contrast between the darkest and lightest parts of the image. With bigger screens, the 'wash out' becomes more important. As a general rule, darken the room to the point where there is just sufficient light to read or write comfortably. Spot lighting is desirable for illuminating small areas so that interference with the screen is minimal.



* Which screen type?

There are two major categories of screens used for projection equipment. Those used for front projected images and those for rear projection applications.

Screens are rated by how much light they reflect (or transmit in the case of rear projection systems) given a determined amount of light projected toward them. The 'GAIN' of a screen is the term used. Front and rear screens are both rated in terms of gain. The gain of screens range from a white matte screen with a gain of 1 (x1) to a brushed aluminized screen with a gain of 10 (x10) or more. The choice between higher and lower gain screens is largely a matter of personal preference and another consideration called the Viewing angle.
In considering the type of screen to choose, determine where the viewers will be located and go for the highest gain screen possible. A high gain screen will provide a brighter picture but reduce the viewing angle.

For more information about screens, contact your local screen supplier.

* What image size? How big should the image be?

The projector is designed for projecting an image size (video) from 1.00m (3.3ft) to 10.00m (39ft) with a aspect ratio of 4 to 3.

* Where to install the projector?

Definitions of the Abbreviation on drawings

B = Distance between ceiling and top of the screen or between floor and bottom of the screen.

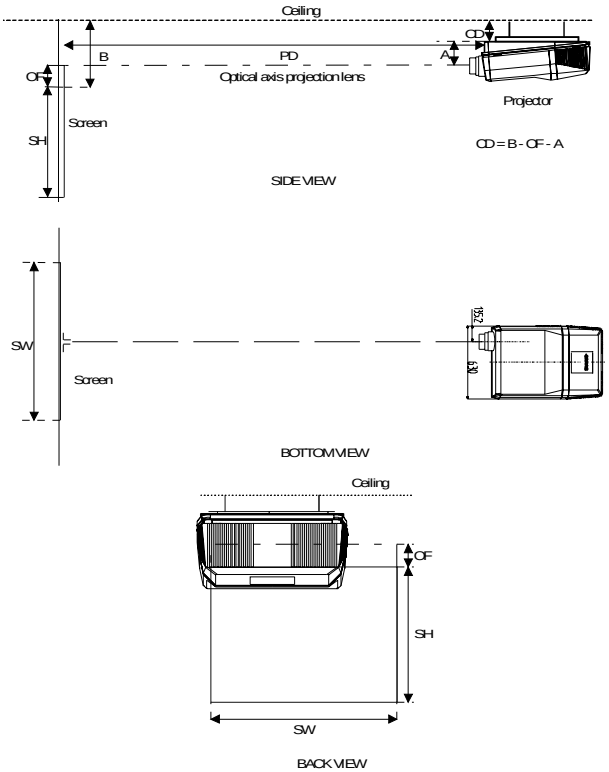
A = Correction value, distance between bottom side of projector (without feed) and middle of the lens. Value to be subtracted from B to obtain the correct installation position. (A value is a constant value for all screen widths and type of lenses, A = 195 mm.)

CD = Total distance between projector and ceiling or projector and floor.

SW = Screen width.

SH = Screen height (image height).

PD = Projector Distance, distance between screen and projector.



* How to install a projection lens?

The projector is supplied without any lens.
The following lenses are available as an option :

HD(1.2:1)	HD(5:1)
HD(2.2:1)	HD(7:1)
HD(3.3:1)	HD(1.5-3:1)
QHD(4.0:1)	WHD(3.5:1)

Inputs and computer video format input compatibility :

Some examples :

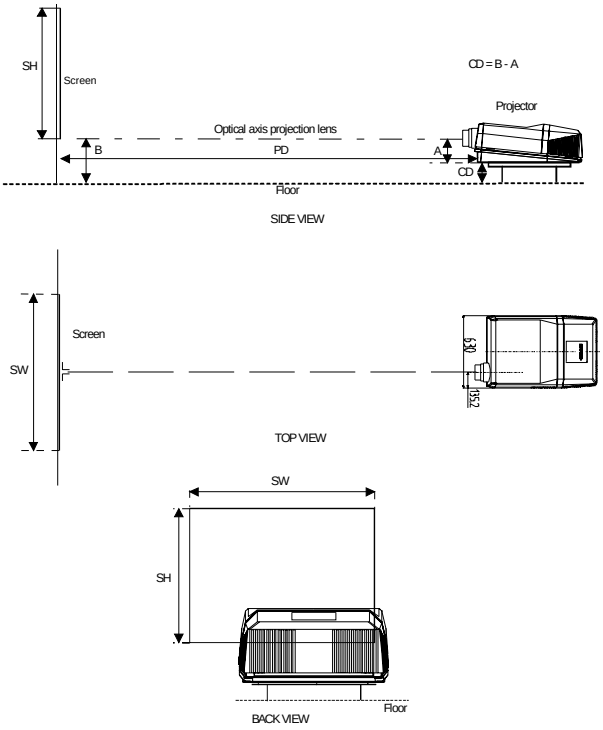
- VIDEO and S-VIDEO
- COMPONENT VIDEO
- RGB ANALOG with STANDARD SYNC (SYNC ON GREEN or SEPARATE SYNC)
- RGB ANALOG with TRI-LEVEL SYNC (SYNC ON GREEN or SEPARATE SYNC)
- VGA : 640 x 480 pixels
- MAC : 640 x 480 pixels
- Super VGA : 800 x 600 pixels
- XGA : 1024 x 768 pixels
- up to 1280 x 1024 pixels
- Sources with pixel clock < 200 MHz

Lens type selection.

a) determine the required screen width.

b) determine the approximate position of the projector in the projection room with regard to the screen and measure the projector-screen distance (PD).

c) use the lens formulas in appendix B to find the best corresponding PD with regard to the measured projector-screen distance for the required screen width.
The desired lens is determined (the order number is given in the tabel in the same appendix B).
Start the installation procedure for the projector as described in the manual.



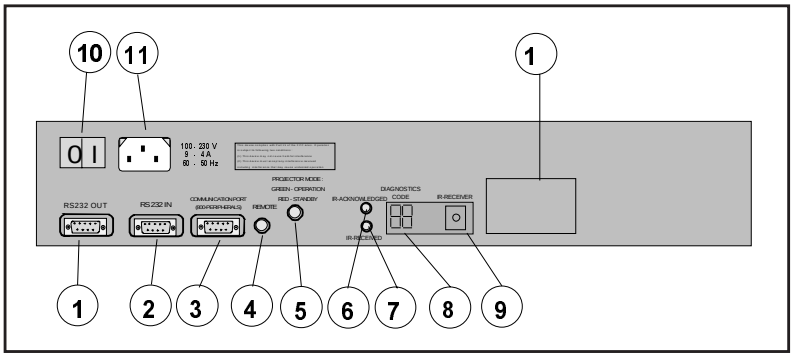
How to install the lens?

Remove the foam rubber in the opening of the lens holder.

- Take the new lens out of its shipping carton and remove the lens covers.
- Turn the lens into the lens holder by turning clockwise.
- Focus the lens (see appendix B) and secure the correct position with the fastener ring by turning this ring clockwise.

3 LOCATION AND FUNCTIONS OF CONTROL

Front Panel Terminology



1 **RS232 IN** : to allow communication with external computer, e.g. IBM PC or compatible, Macintosh ...

2 **RS232 OUT** : used to connect to next projector, RS232IN plug (communication link for PC or MAC to the next projector).

3 **Communication port** : allows communication with the 800 peripherals.

4 **Remote** : remote input for wired remote control.

5 **Projector mode indication** : indicates the status of the projector.

Light off : power switch is not pressed.
Red light : power switch is pressed, projector in stand by mode.
Green light : projector in operational mode.

6 **IR-Acknowledged :** IR signals are recognized.

7 **IR-Received :** IR signals are received but not recognized by the projector.

8 **Diagnostics code :** a) source number
b) error code : a two digits error code is displayed when something goes wrong inside the projector.

9 **IR receiver** : receiver for control signals transmitted from the RCU.

10 **Power switch** : '1' = on, '0' = off

11 **Power input** : autoranging from 90 to 240 Vac.

12 **Identification plate** : name, serial number, art. number.

Voltage identification plate : name, art. number.

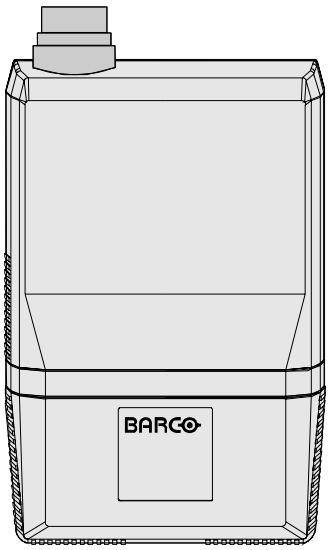
Control Panel Terminology

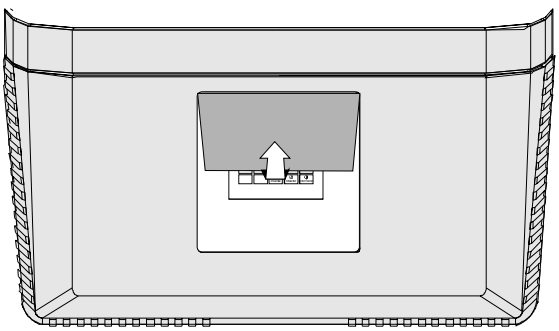
a. Local keypad

Gaining access

The keypad is located behind a door, screened with the name of the projector.

To open the door, push once on the indicated side of the door and turn it to the front side of the projector.



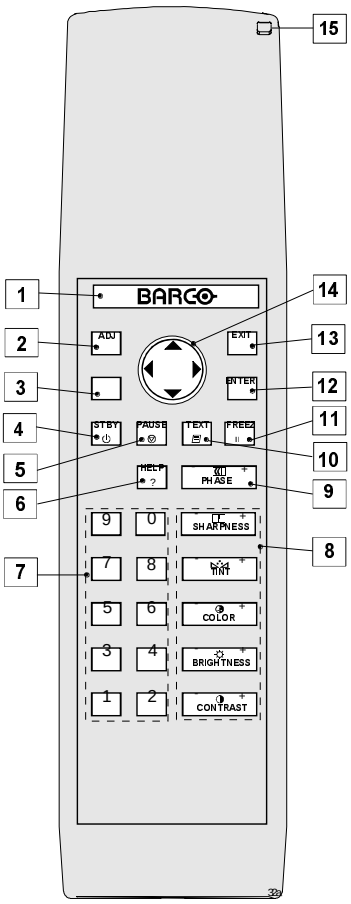


b. Remote control

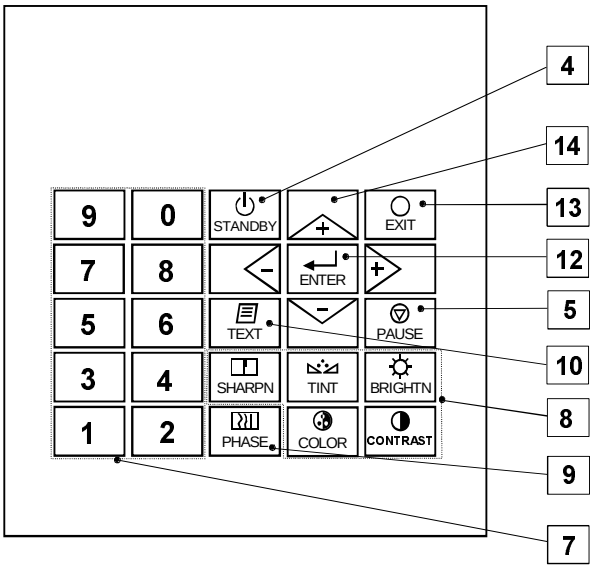
This remote control includes a battery powered infrared (IR) transmitter that allows the user to control the projector remotely.
This remote control is used for source selection, control, adaptation and set up. It includes automatic storing of :
- picture controls (Brightness, Sharpness...)
- settings

Other functions of the remote control are :
- switching between standby and operational mode.
- switching to "pause" (blanked picture, full power for immediate restarting)
- direct access to all connected sources.
- variable adjustment speed : when pushing continuously on the control disc or the picture keys, the adjustment will be executed in an accelerated fashion.

Remote Control (RCU)



Local keypad



Terminology

(1) **Barco Key** : not used for this projector.

(2) **ADJ.** : ADJUST key, to enter or exit the adjustment mode.

(3) **A**ddress key (recessed key), to enter the address of the projector (between 0 and 9). Press the sunk address key with a pencil, followed by pressing one digit button between 0 and 9.

(4) **STBY** : stand-by button, to start projector when the power switch is switched on and to switch off the projector without switching off the power switch.

(5) **PAUSE** : to stop projection for a short time, press 'PAUSE'. The image disappears but full power is retained for immediate restarting.

(6) **Help :** on line help information (not yet available)

(7) **Digit buttons** : direct input selection.

(8) **Picture controls** : use these buttons to obtain the desired picture analog level (see also 'Controlling').

(9) **PHASE** : used to remove the instability of the image.

(10) **TEXT** : when adjusting one of the image, e.g. controls during a meeting, the displayed bar scale can be removed by pressing 'TEXT' key first. To re-display the bar scale on the screen, press 'TEXT' key again. 'TEXT' key only active in operational mode.

(11) **FREEZ** : press to freeze the projected image.

(12) **ENTER** : to start up the adjustment mode or to confirm an adjustment or selection in the adjustment mode.

(13) **EXIT** : to leave the adjustment mode or to scroll upwards when in the adjustment mode.

(14) **Control disc Key** (on RCU) or **'+' and '-' keys** (cursor keys): to make menu selections when in the adjustment mode.

The control disc can move forward, backward, to the right or to the left.

Comparision between control disc movement and the use of the cursor keys on the local keypad :

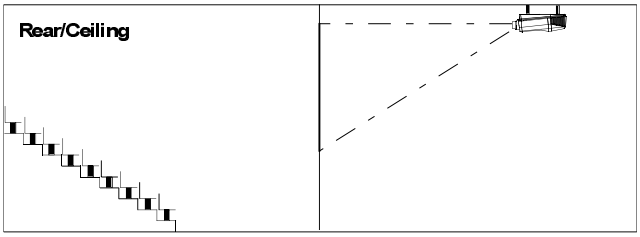
RCU	=	local keypad
control disc forward	=	'+' key up
control disc backward	=	'-' key down
control disc to the right	=	'+' key right
control disc to the left	=	'-' key left

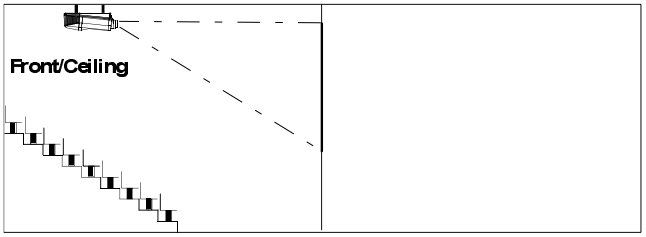
Use the **'+' and '-' keys** (cursor keys) : to increase or decrease the analog level of the image controls when they are first selected.

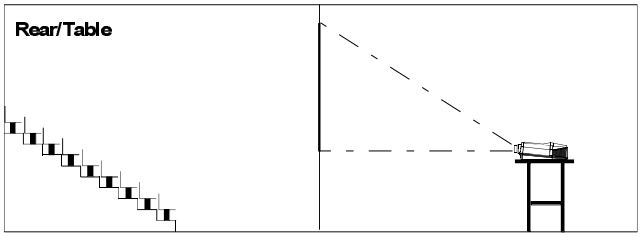
(15) **RC operating indication** : lights up when a button on the remote control is pressed. (This is a visual indicator to check the operation of the remote control)

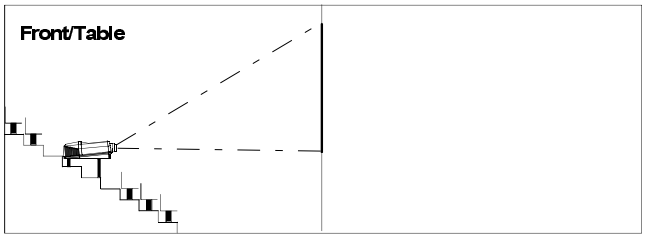
4 INSTALLATION SET UP

The projector can be installed to project images in four different configurations : front/table, front/ceiling, rear/table and rear/ceiling.



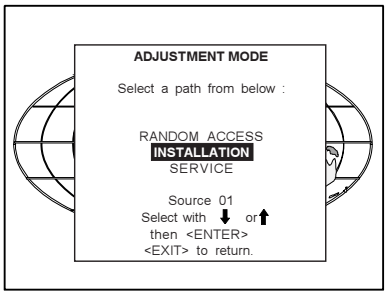






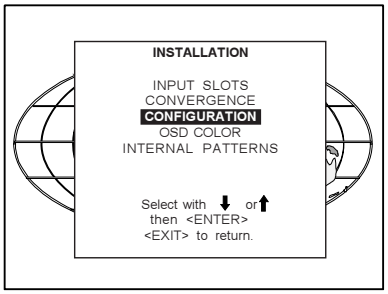
To change the Configuration, enter the adjustment mode by pushing **ADJUST** or **ENTER**. Highlight Installation by pushing the control disc forward or backward and press **ENTER** to select. The installation menu will be displayed.

ENTER displays the Installation menu.
EXIT or ADJUST returns to operational mode.



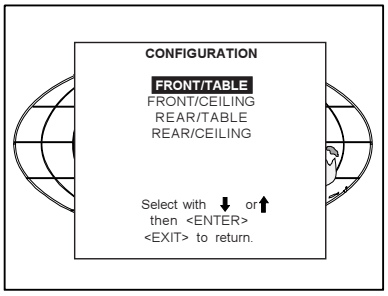
Highlight Configuration by pushing the control disc forward or backward and press **ENTER** to select. The configuration menu will be displayed.

ENTER displays the Configuration menu.
EXIT returns to the path selection menu.
ADJUST returns to operational mode.



The actual selected configuration will be highlighted.
Push the control disc forward or backward to select the corresponding configuration with regard to the projector environment. Press **ENTER** to confirm your selection.

ENTER to confirm the selection.
EXIT returns to the installation menu.
ADJUST returns to operational mode.

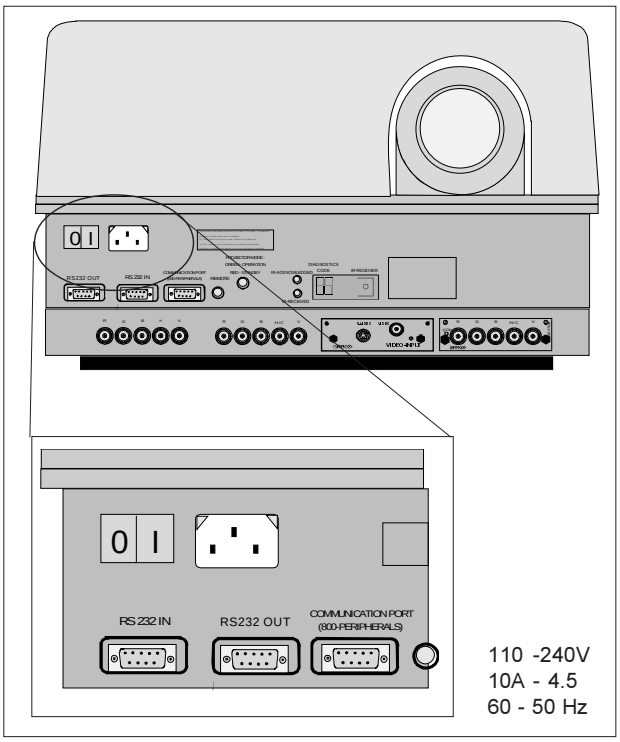


5 CONNECTIONS

Power (mains) cord connection

Use the supplied power cord to connect your projector to the wall outlet. Plug the female power connector into the male connector at the front of the projector.

The power input is auto-ranging from 100 to 240 VAC.
This projector may be connected to an IT-power system.



Fuses

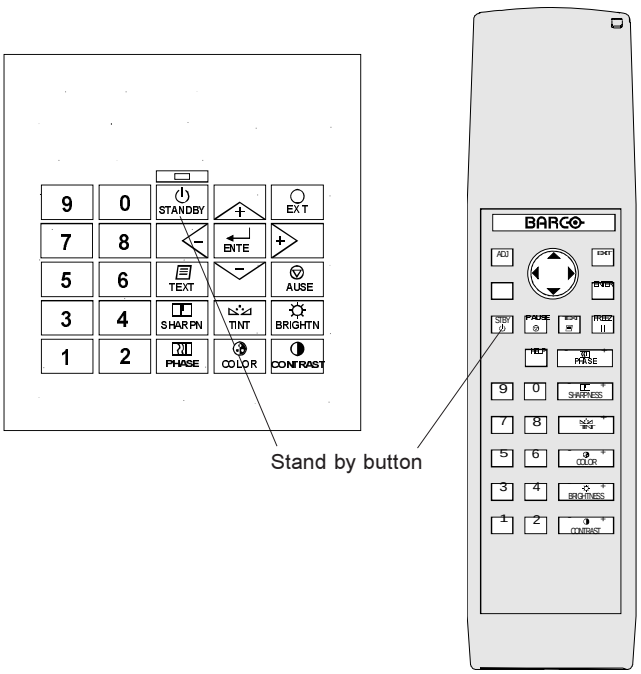
Warning
For continued protection against fire hazard :
- refer replacement to qualified service personnel
- ask to replace with the same type of fuse.
  Fuse type : T12.5 AH/250V

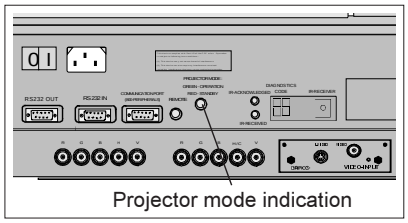
Switching on

Use the power switch to switch on.

When '0' is visible, the projector is switched off.
When '1' is visible, the projector is switched on.
When switching on with the power switch, the projector starts in the stand by mode. The projector mode indication lamp is red.

To start image projection :
a. press the 'Stand by' button on the local keypad or on the remote control. The projector mode indication lamp will be green.
b. press a digit button to select an input source. The projector mode indication lamp will be green.





Lamp Run Time

When the total run time of the lamp is 970 hours or more, the following message will be displayed for 1 minute. This message will be repeated every 30 minutes. Press EXIT to remove the message before the minute is over.

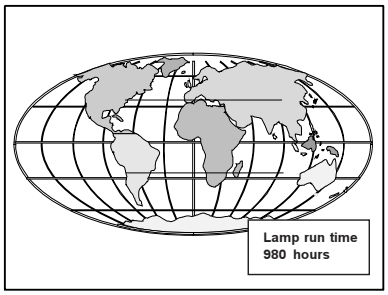
When the total run time of the lamp is 1000 hours or more, the following message, with the exact run time is displayed on the screen.

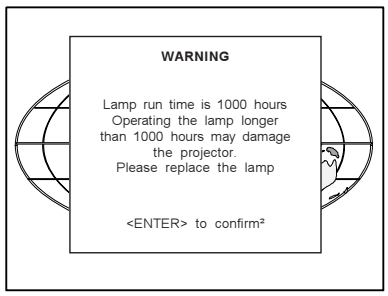
Lamp run time is 1000 hours. Operating the lamp longer than 1000 hours may damage the projector. Please replace the lamp.

When OK (ENTER) is pressed to go on, the warning will be repeated every 30 min.

The total lifetime of the lamp for a safe operation is 1000 hours max. (normal power mode). Do not use it longer. Replace always with a same type of lamp. Call a BARCO authorized service technician for lamp replacement.

Warning : Using a lamp for more than 1000 hours is dangerous, the lamp could explode.





Switching to stand-by.

When the projector is running and you want to go to stand-by, press the stand-by key.

Switching off

To switch off:
- press first **STANDBY** key and let cool down until the fans stop blowing (or at least 15 min).
- switch off the projector with the power switch.

WARNING : When switching to standby, never restart projection (hot restrike) within the first 3 minutes to avoid damage to the lamp.

Input connections.

The projector has modular input facilities. The input slots can be filled up with the following modules :

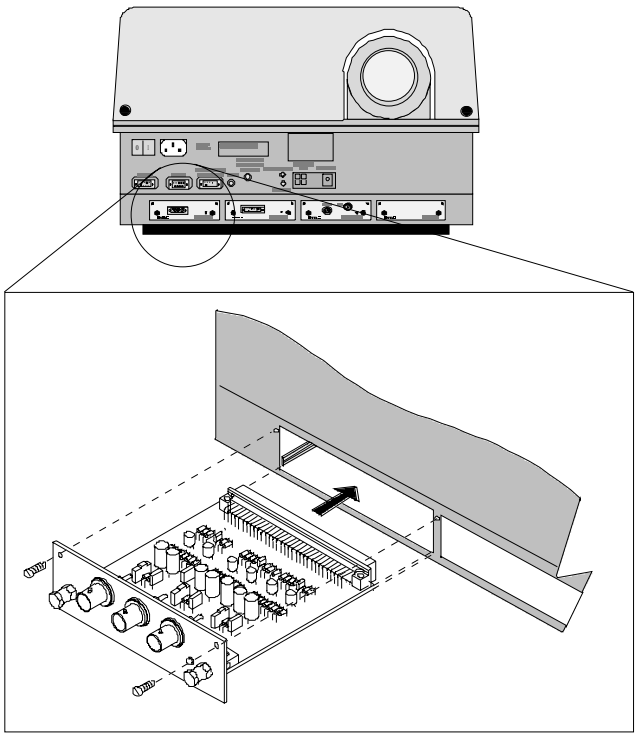
Video, S-video input order no. R9827900
RGBS/RGsB analog input order no. : R9827910
RGB3S/RG3sB input order no. : R9827920
Component Video input order no. : R9827930

The sequence of insertion has no importance, exept when using a RCVDS or VS05. It is even perfectly possible to insert several input modules of one type.

Note : When using RCVDS05 or VS05, the input configuration of the projector must be as follows:
Slot 1 : video input module
Slot 2 : RGB analog input module
Slot 3 : Component input module

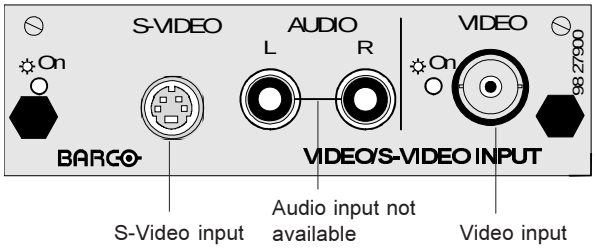
Input module insertion into the projector :

- Power down the projector and disconnect the power cord from the wall outlet.
- Remove the dummy plate covering the chosen input slot by turning out both screws.
- Slide the input module in the free slot. Insure the module is seated correctly in the guide grooves.
- Press on both handles of the input module until the module plug seats in the connector of the projector.
- Secure the input module by tightening both retaining screws.
- Reconnect the power cord to the wall outlet and switch on the projector.



The new installed module can be selected with the digit buttons on the RCU or the local keypad.

Video/S-video input module



To the Video input :

Composite video signals from a VCR, OFF air signal decoder, etc...
1 x BNC 1.0Vpp ± 3 dB

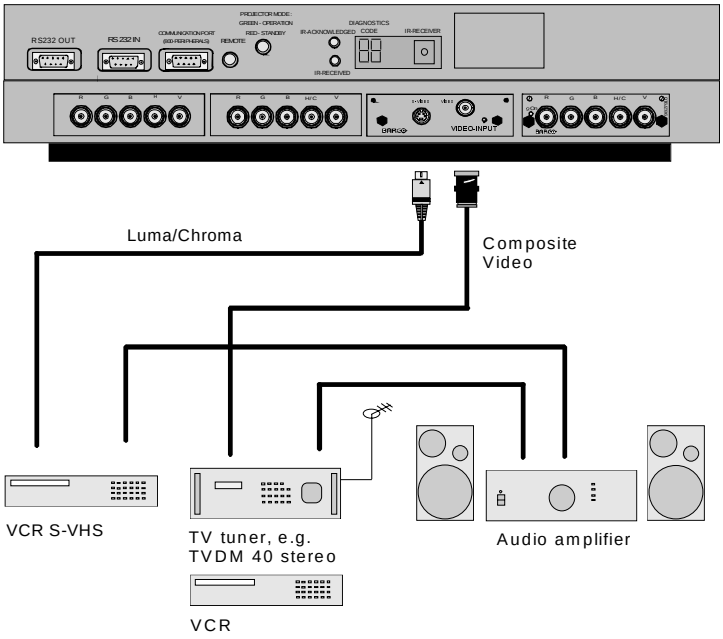
To the S-Video input :

Separate Y-luma/C-chroma signals for higher quality playback of Super VHS-signals.

1 x 4 pins plug (mini DIN)
pin configuration :
1 ground luminance
2 ground chrominance
3 luminance 1.0 Vpp ± 3 dB
4 chrominance 282 mVpp ± 3 dB

Input selection :

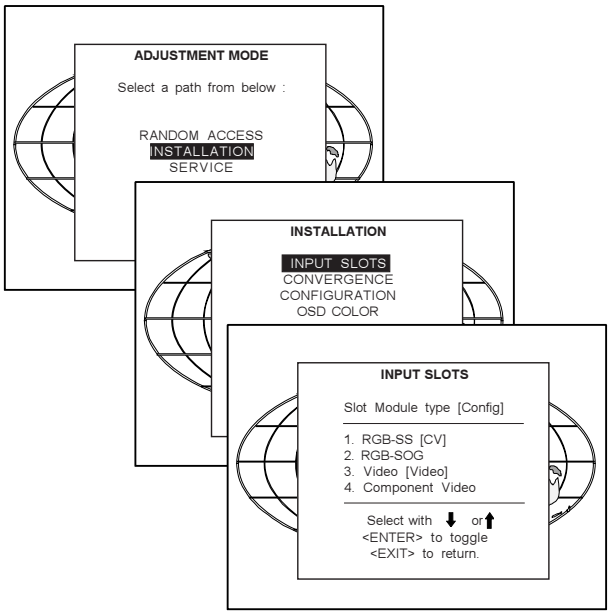
Key in the corresponding slot number on the RCU or the local keypad. Depending on the priority setting in the Input slots menu, Video or S-Video will be displayed. If the wrong source type is displayed, start up the adjustment mode by pressing **ADJUST** or **ENTER**.

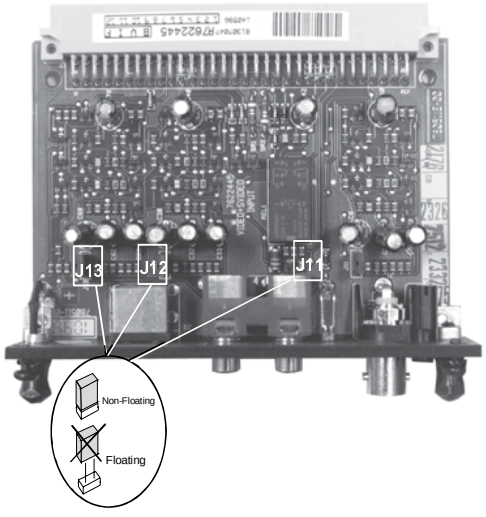


Push the control disc key forward or backward to highlight System settings and press **ENTER** to display the 'System Settings menu'. **EXIT** returns to operational mode.

Use the control disc to select 'Input Slots' by pushing it forward or backward and press **ENTER**. The internal system will scan the inputs and displays the result in the 'Input Slots menu'.

Push the control disc forward or backward to select the corresponding (video or S-video) input slot number.
To change the priority between Video and S-Video, press **ENTER** key to toggle.





Floating or non floating input

Straps on module level.

Floating or non-floating input.

Video input :
J11 : strap "yes" : non floating strap "no" : floating

S-Video input :
J12 : strap "yes" : non floating strap "no" : floating
J13 : strap "yes" : non floating strap "no" : floating

Factory preset : strap on, input non floating.

RGB Analog Input Module.

RGB analog input terminals with separate Horizontal and Vertical sync inputs(RGB-HV), with Composite sync input(RGB-S) or with Sync signals on green(RGsB).

Always use an interface when a computer and local monitor have to be connected to the projector. Interfaces to be applied :

Universal analog interface.
Order number : R9826100.
RGB 120 MHz analog interface.
Order number : R9826570.
VGA interface
Order number 120V : R9828079.
Order number 230V : R9828070
MAC interface
Order number 120V : R9828059
Order number 230V : R9828050
MAGIK interface
Order number 120V : R9828129
Order number 230V : R9828120

RGBS/RGsB analog : 5 x BNC
Red : 0.7 Vpp ± 3 dB
Blue : 0.7 Vpp ± 3 dB
Green : 0.7 Vpp ± 3 dB
1 Vpp ± 3 dB if sync on green
Vert. sync : 1 Vpp to 4 Vpp ± 3 dB
Hor. sync / Composite sync :
1 Vpp to 4 Vpp ± 3 dB

All input signals are always 75 ohm terminated, even in the "not selected" mode.

RGB Input Selection :

Key in the corresponding slot number on the RCU or the local keypad.

Straps on Module Level :

Floating or non-floating input.

Red : J3 : strap "yes" : non floating strap "no" : floating
Green : J4 : strap "yes" : non floating strap "no" : floating
Blue : J5 : strap "yes" : non floating strap "no" : floating
H/C : J6 : strap "yes" : non floating strap "no" : floating
V : J7 : strap "yes" : non floating strap "no" : floating

Factory preset : strap "yes", non floating input

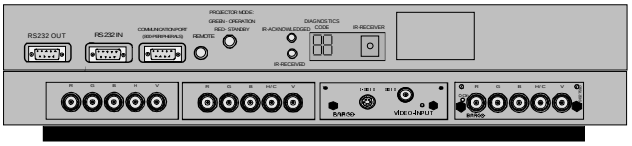
Sync selection : strap on module level.

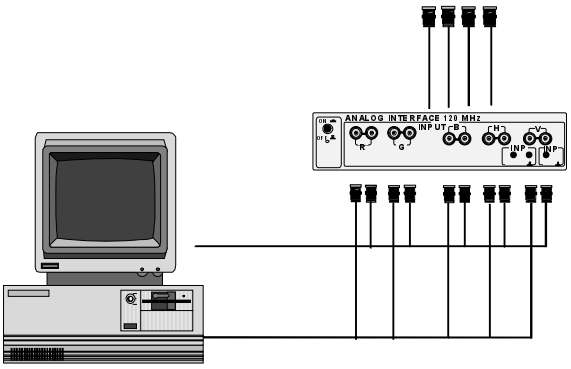
J8 : see drawing

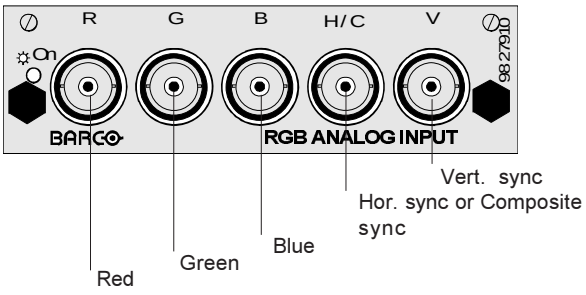
Factory preset : separate sync.

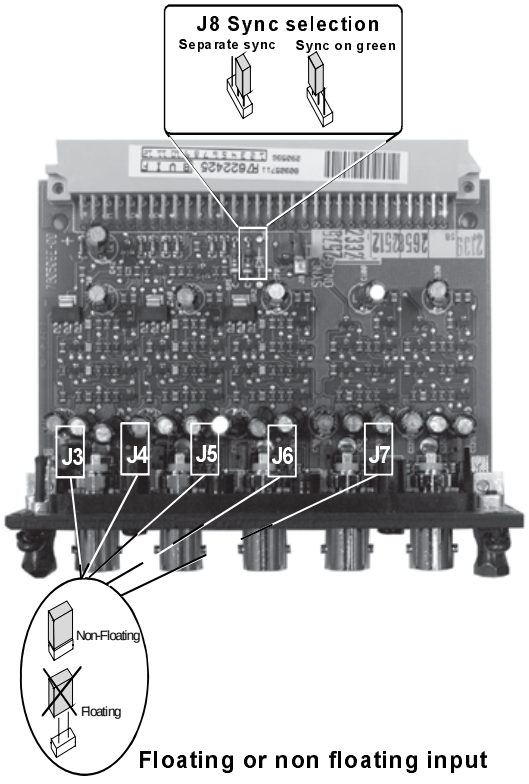
Sync selection on the Input Slots menu.

The horizontal sync input can be set as separate sync input or as separate sync + video input. To change this setting, press **ENTER** key to start up the Adjustment mode.



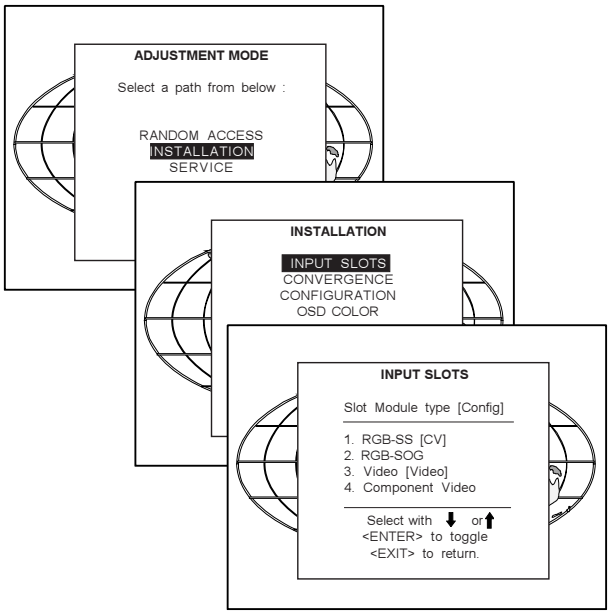






Floating or non floating input

Push the control disc key forward or backward to select *System Settings* and press **ENTER**.



Use the control disc to select Input Slots by pushing forward or backward and press **ENTER**. The internal system will scan the inputs and displays the result in the Input Slots menu.

Push the control disc forward or backward to select the corresponding RGB input slot. To change the sync priority for Sync separate, press **ENTER** key to toggle between CV and CS or HS&VS.

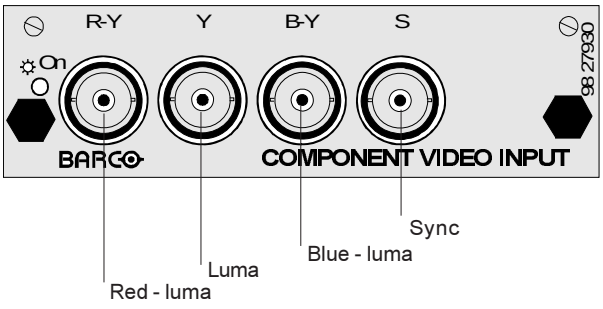
Possible indication :

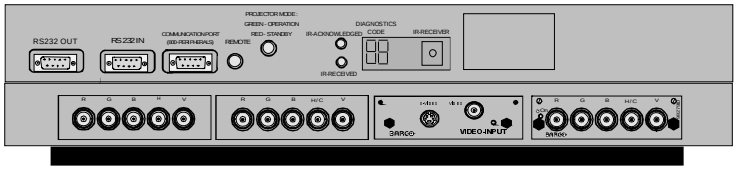
RGB-SS [CV] = separate sync is composite video signal on H/C input.
RGB-SS [CS or HS&VS] = separate sync is composite sync or horizontal and vertical sync.
RGB-SOG = sync on green.

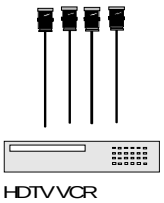
Component Input Module.

Connect your component signals (Y-luma, R-Y and B-Y), e.g. a professional VCR to the Component input module.
Component video : 4 x BNC
R-Y : 0.7 Vpp ± 3 dB
B-Y : 0.7 Vpp ± 3 dB
Y : 0.7 Vpp ± 3 dB
1 Vpp ± 3 dB if Tri-level sync on green
Composite sync : 1 Vpp to 4 Vpp ± 3 dB

All input signals are always 75 ohm terminated, even if the module is "not selected".







Component Input Selection :

Key in the corresponding slot number on the RCU or the local keypad.

Indication on the Input Slot Menu :

Component Video-SS = Component video with separate sync
Component Video-SOY = Component video with sync on Y
Component Video-3LSS = Component video with 3 level separate sync
Component Video-3LSOY = Component video with 3 level sync on Y

Straps on module level :

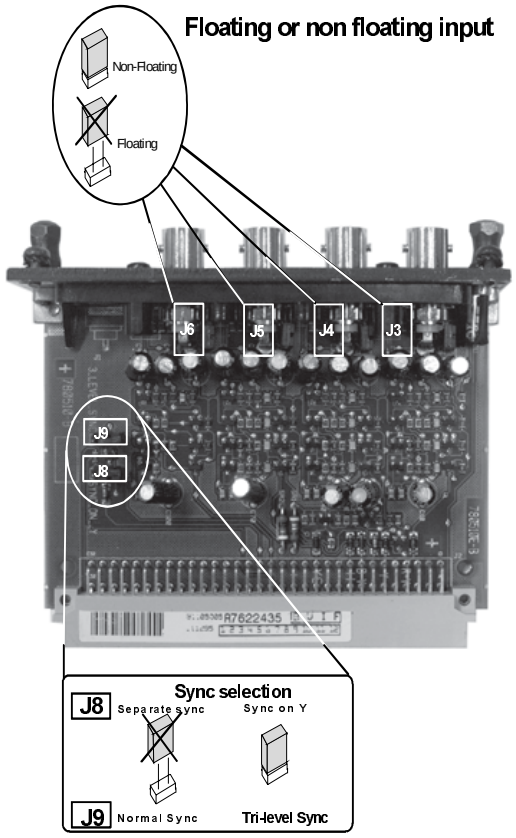
Floating or non-floating input.
R-Y : J3 : strap "yes" : non floating strap "no" : floating
Y : J4 : strap "yes" : non floating strap "no" : floating
B-Y : J5 : strap "yes" : non floating strap "no" : floating
S : J6 : strap "yes" : non floating strap "no" : floating

Factory preset : strap "yes", non floating input

Sync selection.
J8 :
strap "no" : separate sync
strap "yes" : sync on Y.

J9 :
strap "yes" : Tri-level sync
strap "no" : normal sync.

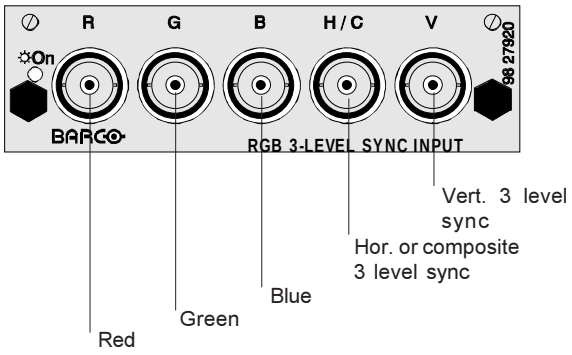
Factory preset :
separate sync and
normal sync.



RGB3S/RG3sB Input Module.

Connect your RGB signals with Tri-level sync, e.g. a professional VCR to the RGB 3 level sync input module.
RGB3S/RG3sB analog : 5 x BNC
Red : 0.7 Vpp ± 3 dB
Blue : 0.7 Vpp ± 3 dB
Green : 0.7 Vpp ± 3 dB
1 Vpp ± 3 dB if Tri-level sync on green
Vert. Tri-level sync : 1 Vpp to 4 Vpp ± 3 dB
Hor. Tri-level sync / Composite Tri-level sync:
1 Vpp to 4 Vpp ± 3 dB

All input signals are always 75 ohm terminated, even in the "not selected" mode.

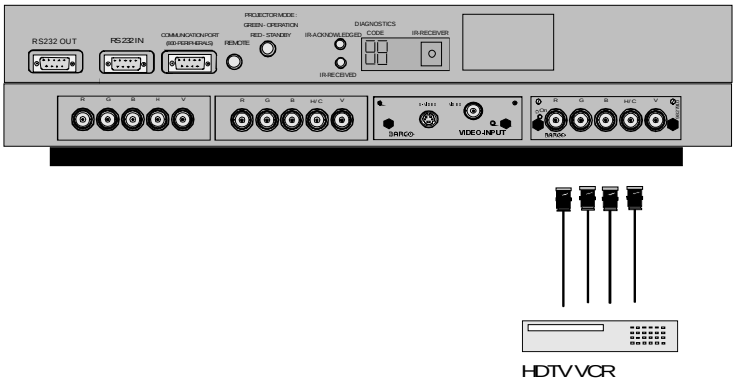


Input Selection :

Key in the corresponding slot number on the RCU or the local keypad.

Indication on the Input Slot Menu :

RGB3L-SS = RGB with separate Tri level sync.
RGB3L-SOG = RGB with Tri level sync on green.



Straps on module level :

Floating or non-floating input.

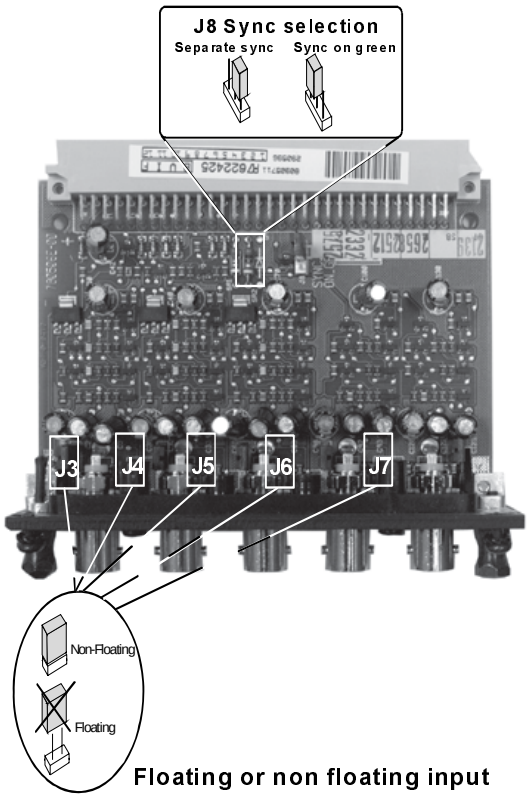
Red :	J3 : strap "yes" : non floating	strap "no" : floating
Green :	J4 : strap "yes" : non floating	strap "no" : floating
Blue :	J5 : strap "yes" : non floating	strap "no" : floating
H/C :	J6 : strap "yes" : non floating	strap "no" : floating
V :	J7 : strap "yes" : non floating	strap "no" : floating

Factory preset : strap "yes", non floating input

Sync selection.

J8 : separate sync or sync on green.

Factory preset : separate sync.



Floating or non floating input

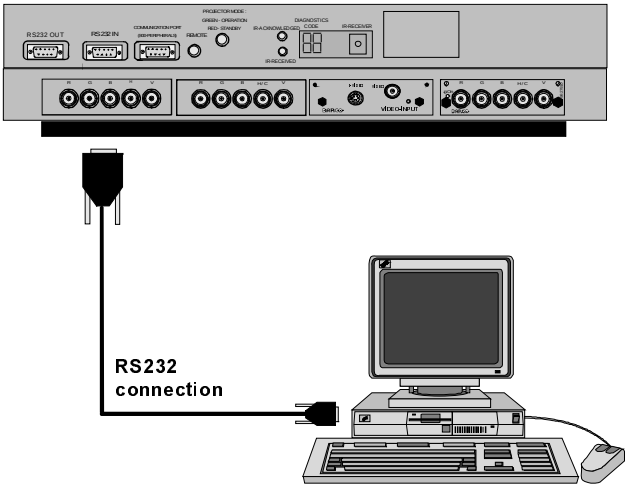
Connecting a computer, e.g. IBM PC (or compatible), Apple Macintosh to the RS 232 input of the projector.

The projector has a RS232 port that allows it to communicate with a computer.

Applications : remote control and DATA communications.

a) remote control :
- easy adjustment of projector via IBM PC (or compatible) or MAC connection.
- allow storage of multiple projector configurations and set ups.
- wide range of control possibilities.
- address range from 0 to 255.

b) DATA communications :
- sending DATA to the projector or copying the VISION from the projector to a hard memory device.



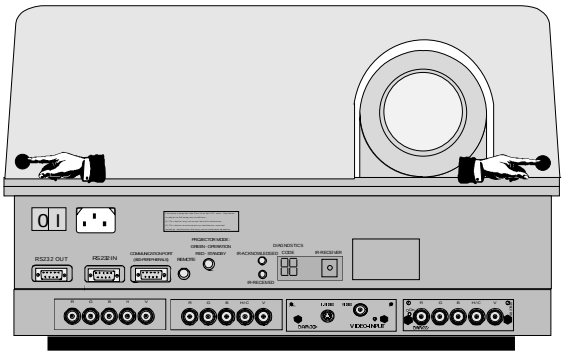
Set up of the baud rate for communication with a computer.

The communication speed between projector and computer, e.g. PC or MAC, has 8 possible speeds. With DIP switches S2(1,2,3) on the controller unit, it is possible to select the baud rate (communication speed).

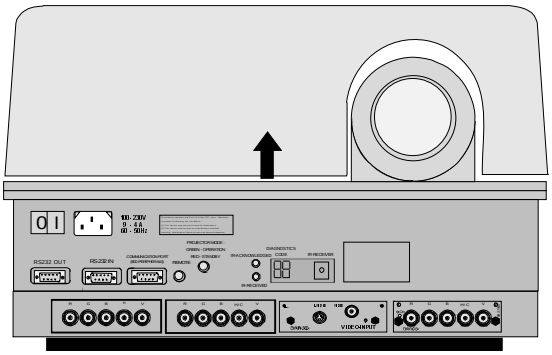
Gaining access to the DIP switches

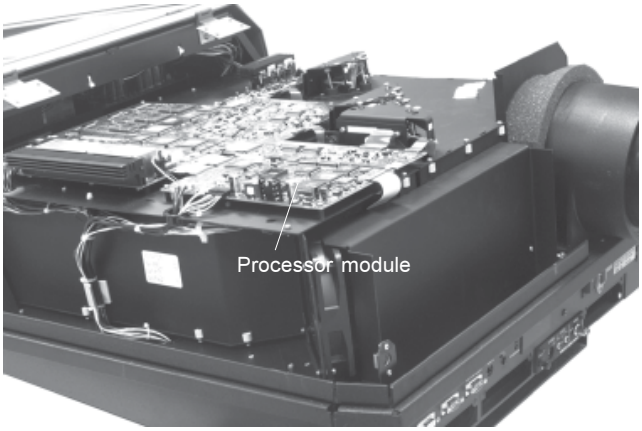
- Power down the projector and unplug the power cord from the wall outlet.
- Turn both lock screws with a screwdriver or coin counter clock-wise.
- Lift up and pivot the top cover. Attention : the cover is not secured with an incorporated support. When opening, turn it over slowly and lay it down on the second part of the top cover.
- The processor module with the DIP switches is located on top, the front left side (seen from the front of the projector, see next page).

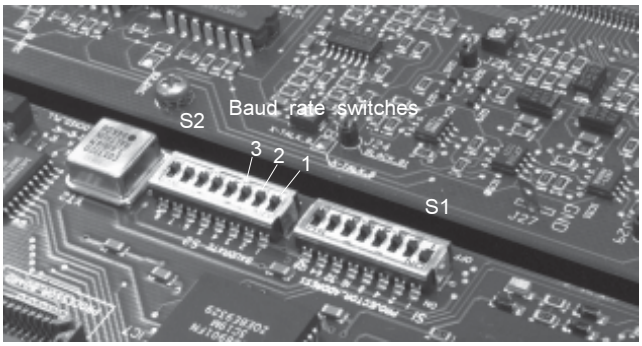
Loosen the locking screws



Open the top cover







Baud rate setting

baud rate	S2/1	S2/2	S2/3
9600	OFF	OFF	OFF
4800	ON	OFF	OFF
2400	OFF	ON	OFF
1200	ON	ON	OFF
600	OFF	OFF	ON
300	ON	OFF	ON
150	OFF	ON	ON
75	ON	ON	ON

Change the position of the DIP switches with a small screwdriver.

If all switches are in the correct position, close the top cover and secure it by turning the lock screw clockwise. Connect the power cord to the wall outlet and switch on the projector.

Connecting a RCVDS 05 to the projector.

- Up to 10 inputs (20 when video inputs) with the RCVDS 05 and 90 inputs when RCVDS's are linked via the expansion module.
- Serial communication with the projector.
- Remote control buttons on the RCVDS to control the projector (source selection and analog settings).
- The selected source number will be displayed on a 2 digit display and the selected input module will be indicated with a LED on the rear.

For more information about the use of the RCVDS 05, consult the owner's manual, order number : R5975765.

Connecting a VS05 to the projector

The VS05 can switch up to 5 Composite Video sources, 3 Super Video sources and 1 RGB analog or component video source to the projector. In addition, the audio signal proper to the source, can be switched to an audio amplifier.
Order number : R9827890
For more information about the use of the VS05, consult the VS05 owner's manual, BARCO order number : R5975245.

Connecting an IR Remote Receiver 800 to the projector.

This infrared red receiver unit makes it possible to control the projector from another room.
There is a communication line cable between the IR receiver and the projector or the RCVDS. The control information from the RCU can now be sent to the IR Remote Receiver 800.
The IR Remote Receiver 800 displays the selected source on a 7-segment display.
Order number : R9827515.

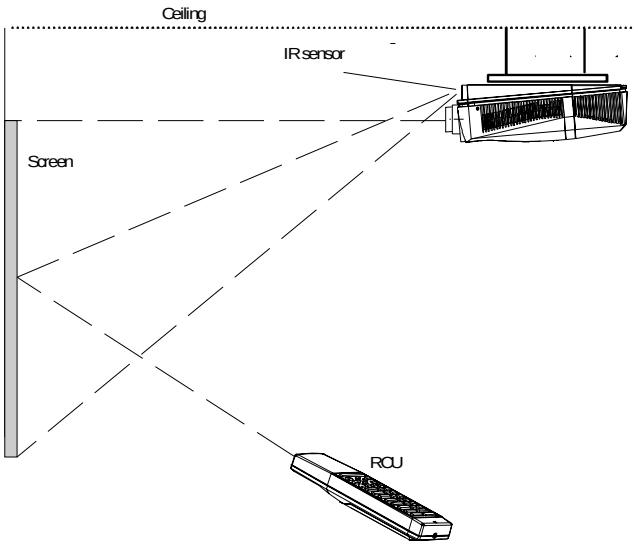
6 CONTROLLING

The projector can be controlled with
a. The RCU
b. The hardwired RCU (cable is not included)
c. The local keypad.

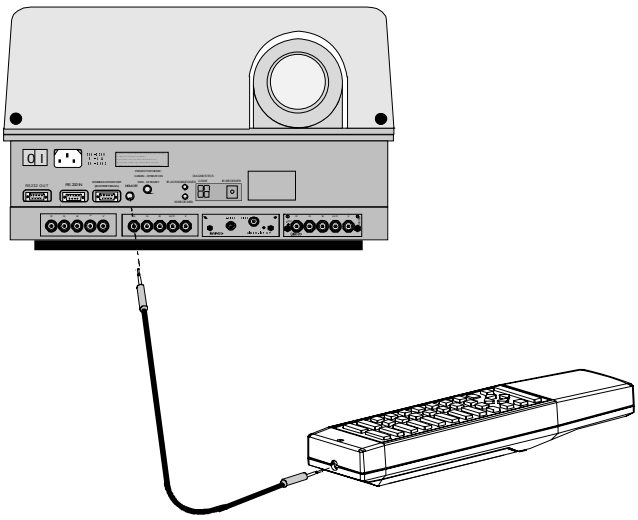
Controlling the projector with the RCU and the hardwired RCU is equal.

How to Use the RCU?

a) Point the front of the RCU to the reflective screen surface.

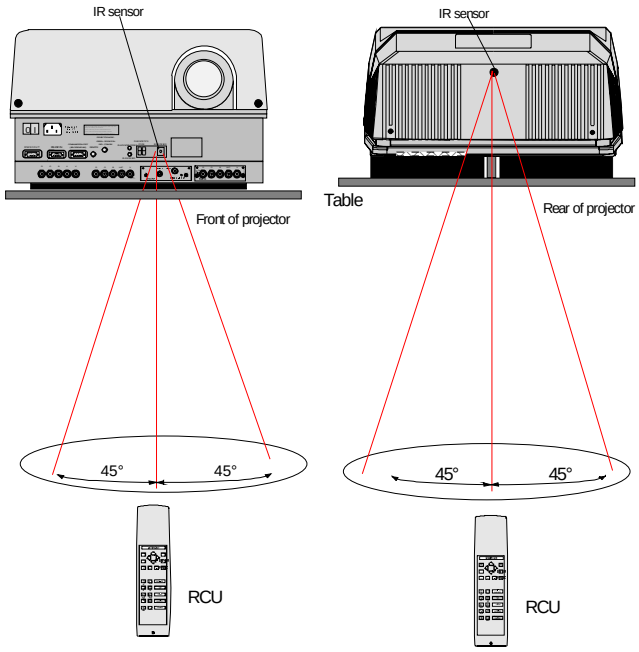


b) RCU used in a hardwired configuration.



Plug one end of the remote cable in the connector on the bottom of the RCU and the second side in the connector in the front panel of the projector labelled 'REMOTE'.

c) Point the front of the RCU directly at one of the IR sensors of the projector.



When using the wireless remote control, make sure you are within the effective operating distance (30m, 100ft in a straight line). The remote control unit will not function properly if strong light strikes the sensor window or if there are obstacles between the remote control unit and the projector IR sensor.

Projector Address

a. Software Set up of the Projector Address.

See 'Change projector address' in chapter 'Service mode'.

b. How to Control the Projector or Projectors.

Every projector requires an individual address between 0 and 255 which can be set in the Service mode.
When the address is set, the projector can be controlled now :

- RCU for addresses between 0 and 9.
- Computer, e.g. IBM PC (or compatible), Apple MAC, etc. for addresses between 0 and 255.

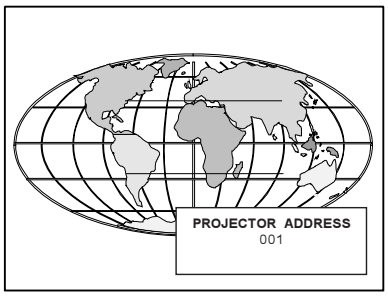
Note : A projector will respond to a RCU set to an address of '0' regardless of what address is set in the projector itself.

c. Using the RCU.

Before using the RCU, its is necessary to enter the projector address into the RCU (only when that address is between 0 and 9). The projector with the corresponding address will listen to that specific RCU.
When address 0, <zero> is programmed into the RCU, every projector, without exception will listen to the commands given by this RCU.

How to Display a Projector Address?

Press the **ADDRESS** key (recessed key on the RCU) with a pencil. The projector's address will be displayed in a 'Text box'. This text box disappears after a few seconds. To continue using the RCU, it is necessary to enter the same address with the digit buttons (address between 0 and 9). For example : if the Address key displays projector address 003, then press "3" digit button on the RCU to set the RCU's address to match the projector's address. Do not press digit 003. This will address the remote to '0' and control all the projectors in the room.

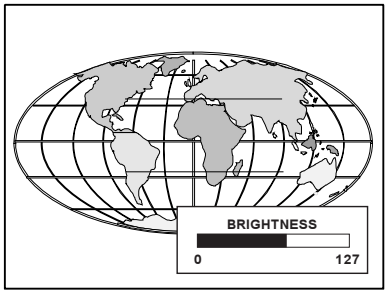


How to Program an Address into the RCU?

Press the **ADDRESS** key (recessed key on the RCU) with a pencil and enter the address with the digit buttons. That address can be any digit between 0 and 9.

Picture Controls with Direct Access.

When an image control is pressed, a text box with a bar scale, icon and function name of the control, e.g. 'brightness...' appears on the screen (only if text is ON). See example screen. The length of the bar scale and the value of the numeric indication indicate the current memorized setting for this source. The bar scale changes as the control stick on the RCU is pressed or the + or - buttons on the local keypad.



Brightness Control

A correct *'brightness'* setting is important for good image reproduction.
Use the + button for a higher brightness.
Use the - button for a lower brightness.

Contrast Control

A correct 'contrast' setting is important for good image reproduction.
Adjust the contrast to the level you prefer, according to room lighting conditions.
Use the + button for a higher contrast.
Use the - button for lower contrast.

Color Saturation

Color saturation is only active for Video and S-Video. Adjust the color intensity of the picture.
Use the + button for richer colors.
Use the - button for lighter colors.

Tint Control

Tint is only active for Video and S-Video when using the NTSC 4.43 or NTSC 3.58 system.
Use the + button
Use the - button.

Sharpness Control.

Use the + button for a sharper picture.
Use the - button for a softer picture.

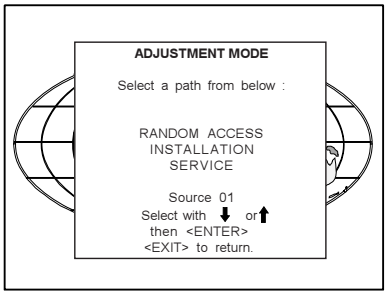
Phase Control

Use the control stick to adjust the phase.

7 START UP OF THE ADJUSTMENT MODE

Adjustment Mode

All source parameters, picture tuning and geometry are made while in the 'Adjustment Mode' . Press the **ADJUST** or **ENTER** key to enter the 'Adjustment mode'.



You are now in the 'Adjustment Mode'. The control disc (RCU) or '+ or '-' keys (local keypad) are used to make menu selections and also for adjustments. The **ENTER** and **EXIT** keys are used to move forward and backward through the menu structure. The **ADJUST** key can be used to terminate the adjustment mode while any path selection menu is displayed.

There are 3 possible paths to follow once in the Adjustment Mode. They are :

Installation - Installation should be selected if a new input module is installed or a new source is connected to an existing input module. Also when the projector is relocated in a new configuration.

Random Access - Random Access should be selected to set up a new source.

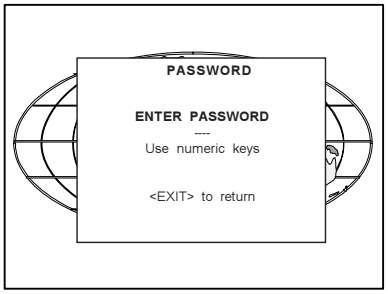
Service - Service should be selected if the user intends to change general settings such as password, language, address, etc.or some service actions as reset lamp run time, panel adjustments, etc. or get set-up information.

Some items in the Adjustment mode are password protected. While selecting such an item, the projector asks to enter your password (Password protection is only available when the password strap on the controller module is ON, see 'Change password' in chapter 10 : 'Service mode'.

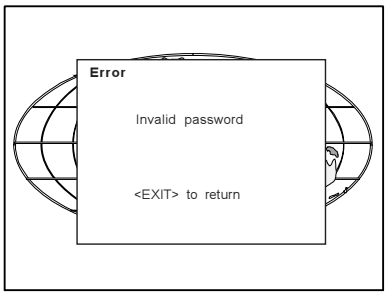
Your password contains 4 digits.

Enter the digits with the numeric keys.
Example : 2 3 1 9

The first digit position is highlighted. Enter with the numeric keys. The highlighted square jumps to the next position. Continue until all 4 digits are filled in.



When your password is correct, you gain access to the selected item.
When your password is wrong. The error message "Invalid password" is displayed on the screen. Press **EXIT** to continue and to return to the Service menu.



Factory programmed password : **0 0 0 0**

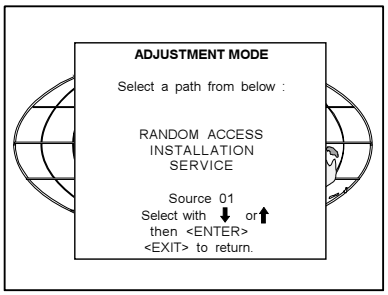
Once the password is correctly entered, all other password protected items are accessible without re-entering your password.

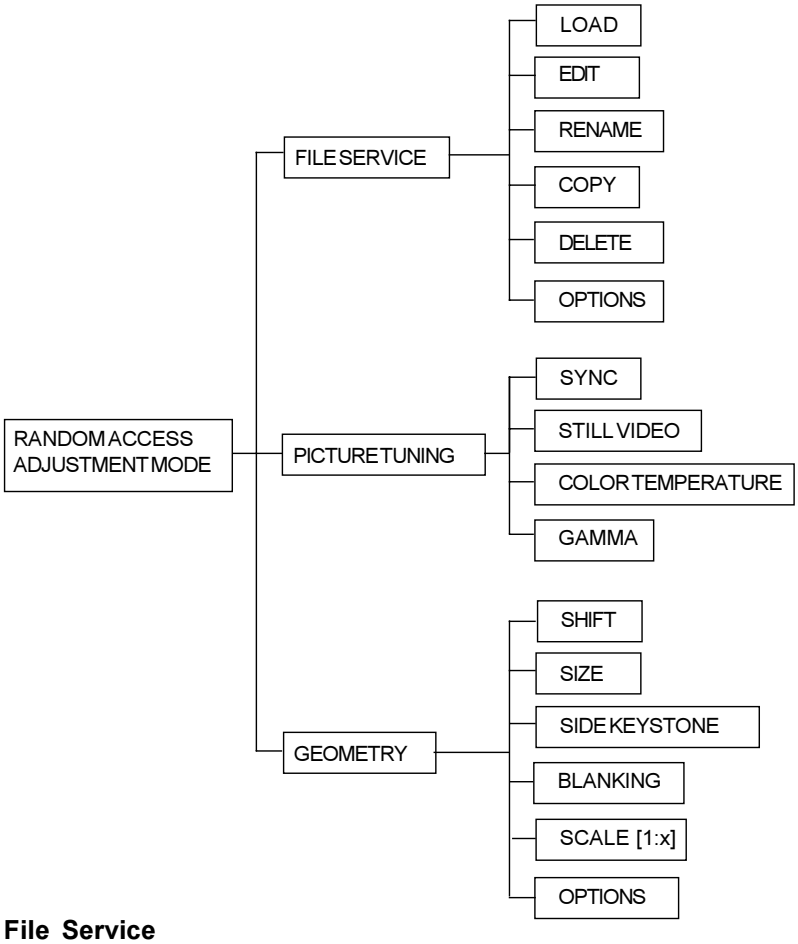
When re-entering the Adjustment mode, it will be nessary to enter your password again when selecting a password protected item.

8 RANDOM ACCESS ADJUSTMENT MODE

Starting up the Random Access Adjustment Mode

Push the control disc up or down to highlight 'Random Access' and then press **ENTER**.





File Service

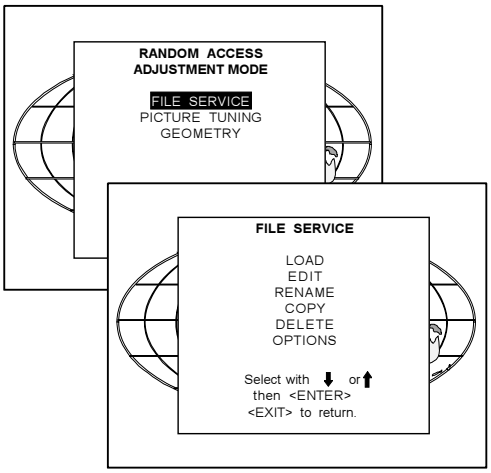
Before using a new source, a correct file has to be installed. The projector's memory contains a list of files corresponding to the most used sources. When the new source corresponds with one of these files, the file can be loaded and saved for future use. When there is a little difference, the file can also be loaded and than edited until the source specs are reached.

File annotation :

xxxxxxxx.xxx x xxxxXxxxxi

- xxxxxxxx : base name, 8 characters.
- xxx : file extension, first character is C (for custom made files) or S (for standard files). The second and third character is used for a following number (=file index) file index for custom files : 00 to 63.
- x : source number
- xxxxXxxxx : active pixel rating
- i or blank : i = interlaced, blank = not interlaced

Highlight *File Service* by pushing the control disc up or down and press **ENTER** to select. The File service menu will be displayed.



> **ENTER** displays the File Service menu;
> **EXIT** returns to the Path selection menu.
> **ADJUST** returns to operational mode.

The following file manupulations are possible :
- Load : installation of a file for a new source.
- Edit : editing a loaded file to the source specs.
- Rename : renaming a file.
- Copy : copying a file to a new file.
- Delete : deleting an existing file.
- Options : way of sorting the files.

Load File

Push the control disc up or down to select LOAD and press **ENTER** to display the Load menu.
The Load menu displays the corresponding files depending on the installed filter.

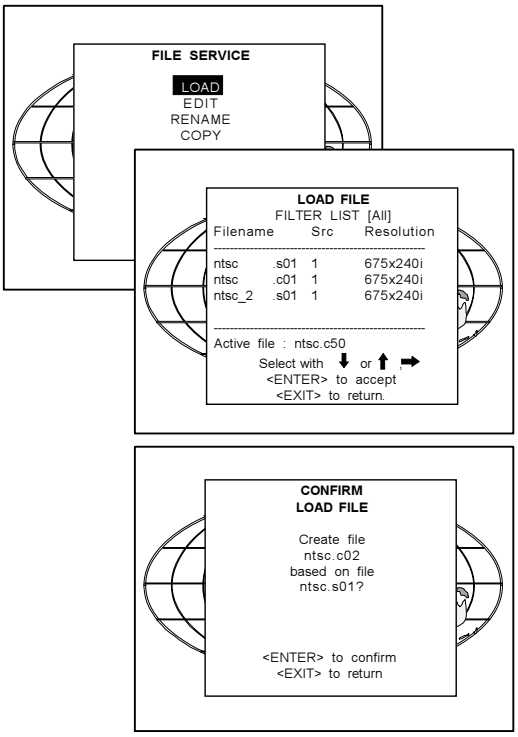
This filter can be "Fit" or "All". To change the filter, push the control disc to the right to select "filter list" (filter list will be hightlighted) and press **ENTER** to toggle the annotation between brackets.

"All" : all files that can be loaded will be displayed.
"Fit" : only the best fitting files will be displayed (with a distinction of ± 2 lines and line duration distinction of ± 300 ns, if noting is found wihtin this small area, the projector continues searching until it finds something.)

Push the control disc up or down to select the best fitting file and press **ENTER** to select.
When scrolling through the files, the image will be adapted according to the settings of the selected file (on line adaptation). When the best fitting image is displayed, press **ENTER** to select this file. A confirm Load file menu will be displayed with the newly created file and the one on which the new file is based on.
Press **ENTER** to confirm your new creations or **EXIT** to return to the load file menu.

If the displayed image is not correct, go to the Edit menu, select the active file and change the File settings.

During a load file, the actual active file is displayed next to the indication 'Active file'.

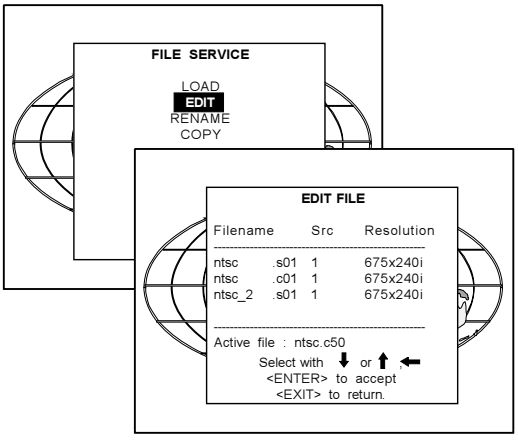


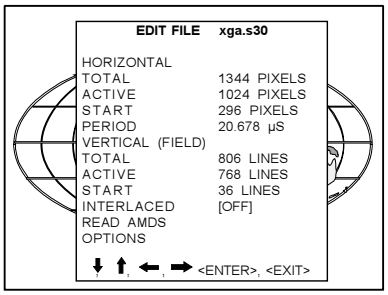
Edit File

The Edit file menu makes it possible to change the settings of the file according to the real settings of the connected source. Consult the source specification before entering the data.

To start up the EDIT menu, push the control disc up or down to select EDIT in the FILE menu and press **ENTER**.
Select the file which must be edited (mostly the active file) and press **ENTER**.

The Edit file adaptation menu will be displayed.





The file name will be displayed in the upper right corner.
The following items can be adjusted :
- Total quantity horizontal pixels
- Active quantity horizontal pixels
- Horizontal start in pixels
- Horizontal period in µs (is automatically adapted during the installation of a file with LOAD)
- Total vertical lines (is automatically adapted during the installation of a file with LOAD)
- Active vertical lines
- Vertical start in lines
- Interlaced : toggle on/off (is automatically set to its correct position during the installation of a file with LOAD)

All settings can individually be changed. Push the control disc up or down to select an item. The color of the selected item will change and follow one of the three methods to change the value.

a. press **ENTER** to activate the digits and enter directly with the numeric keys on the RCU or local keypad the new value or

b. press **ENTER** to activate the digits. Push the control disc to the right or to the left to select the changing digit. Push the control disc up or down to scroll to desired digit. When finished press **ENTER** to confirm.

c. counting up or down by pushing the control disc to the right or to the left.

How to find the correct values for the displayed item?
During the installation of a file with LOAD, the horizontal period, the total number of vertical lines and the interlaced mode are automatically measured and filled in in the menu table. These values will be available when starting up the EDIT procedure of an active file.
(Caution : Do not adjust these settings on an active file, they are used to identify the input source file.)

If the value for *"Horizontal Total Pixels"* is wrong, sampling mistakes (small vertical bars in the projected image) will be seen in the image. Select "Total" and adjust the pixel quantity. Adjust for zero bars (hint: if the number of bars increase, adjust in the other direction).

The *"Active Pixels"* : determine the width of the window on the screen. This value is normally given in the source specifications. If not, adjust until full image is displayed (no missing pixels).

"Horizontal Start" : number of pixels between the beginning of the input signal and the start of the video information in the signal.

"Horizontal Period" : already filled in with the correct value when active file. (see caution above).

The *"Vertical Total Lines"* are already filled when an active file is selected to be edited.

The *"Active Lines"* : number of horizontal lines determining the height of the projected image. This value is normally given in the specification of the source. If not, adjust until full image height is displayed (no missing lines)

Vertical start : number of lines between the start of the input signal and start of the image on the screen.

Interlaced [On] or [Off] : this selection is automatically filled when active file has to be edited. If the image is wrong due to mismeasurement, use the ENTER key to toggle between [On] and [Off]. (for interlaced images, 1 frame contains 2 fields).

Read AMDS
AMDS = automatic mode detection & synchronisation
During the installation of a file with LOAD, the system automatically measured the horizontal period, the total vertical lines and the interlaced mode.
When selecting Read AMDS, the system remeasures the above indicated items.

Options

Source Number : The source number of a non-active source can be changed to any other source number. This makes it possible to create a file for future source numbers.

Clamp Position : Clamping determines the black level of the signal. The clamp pulse can be related to the leading or the trailing edge of the sync pulse. Use the **ENTER** key to toggle between [leading] and [trailing].

Clamp Width : The width of the clamp pulse [1] or [2]
Enter to toggle between [1] or [2].

Field Polarity Inverted :
The field polarity function is used for interlaced images. Both rasters of the image could be shifted in a wrong way (double lines are visilble in the image). This can be corrected by forcing the field polarity to [neg] or [pos].
Use the **ENTER** key to toggle between [yes] and [no].

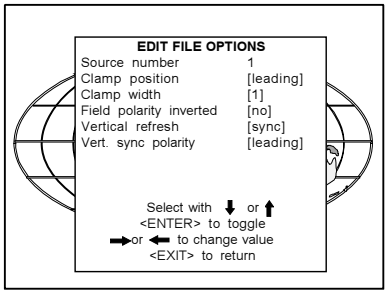
Vertical Refresh [sync/async] : The way of updating the image information on the LCD panels.

• For sources with a vertical frequency up to 60 Hz : the vertical refresh rate is the same as the vertical frequency of the incoming source. This is a necessity to project moving images without 'motion artifacts'. For stationary images with a vertical frequency up to 60 Hz it is still possible to use asynchronous refresh. When loading Pal, Secam, NTSC-files the synchronous mode is default, for all other sources below 60 Hz asynchronous mode is default.

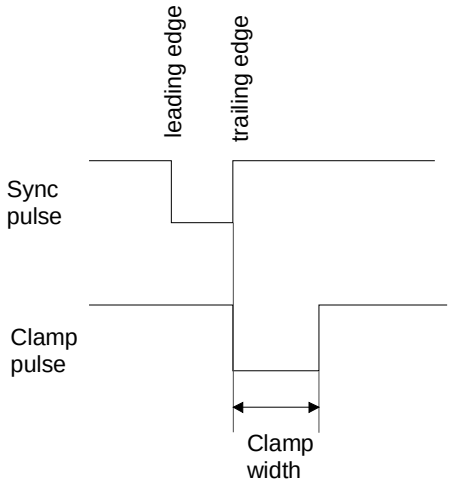
• For sources with a vertical frequency higher that 60 Hz : the vertical refresh is different than the vertical frequency of the incoming source. Synchronous refresh cannot be used.

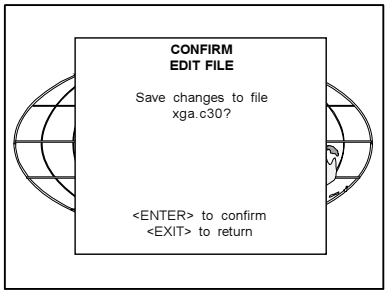
Vertical Sync Polarity : [leading] or [trailing]
The vertical refresh can be synchronised with the leading sync edge or trailing sync edge. Default on [leading].
Toggling to [trailing] is only necessary for special applications where the trailing edge of the sync signal has to be taken as a reference.
Use the **ENTER** key to toggle between [leading] or [trailing]

Press **EXIT** to leave the Edit File Option menu.
A 'Confirm Edit File' menu will be displayed.
Press **ENTER** to confirm and to save the new settings or **EXIT** to return without saving the new entered settings.



Example for clamp position [trailing]

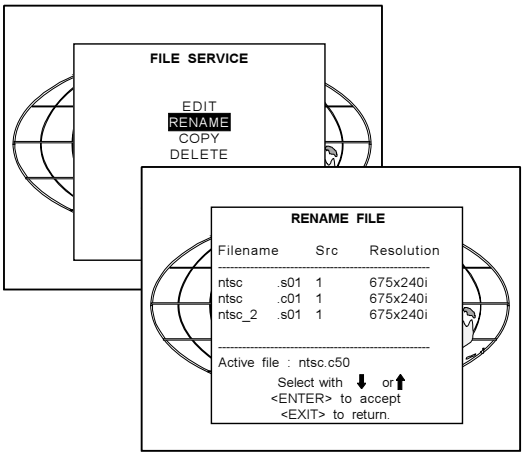




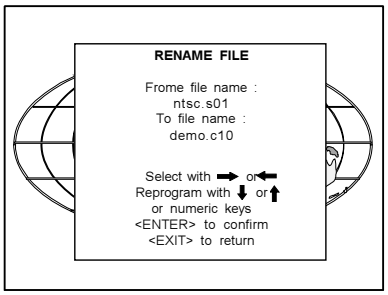
Rename

To change the name of a selected file.
Use the control disc to select RENAME and press **ENTER**. The Rename selection menu will be displayed.
Use the control disc to select a file name and press **ENTER** to select.

The Rename menu will be displayed with the selected file name already filled in in the 'From file name :' area and in the 'To file name :' area.



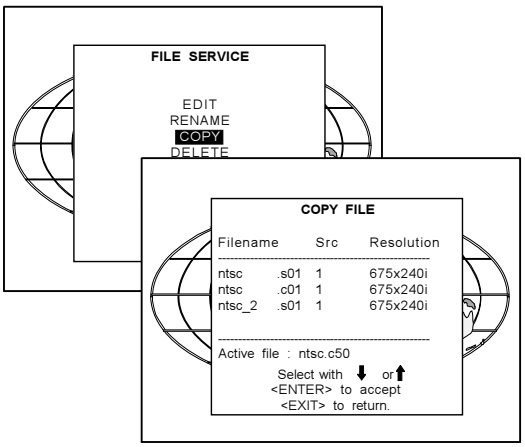
The first character is highlighted. Push the control disc to the right or to the left to select the desired character. Change that character by pushing the control disc up or down. Numeric characters can be entered directly with numeric keys on the RCU.
Press **ENTER** to confirm. The renamed file is entered in the list of files.
Press **EXIT** to return to the Rename menu selection. No changes are made.



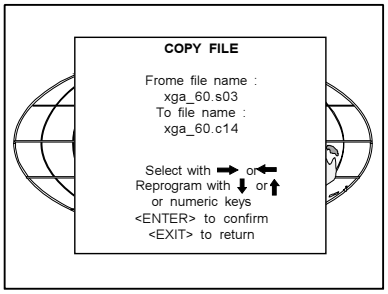
Copy

To copy a selected file into a new file.
Use the control disc to select COPY and press **ENTER**. The Copy selection menu will be displayed.
Use the control disc to select a file name and press **ENTER** to select.

The Copy menu will be displayed with the selected file name already filled in in the 'From file name :' area and in the 'To file name :' area.

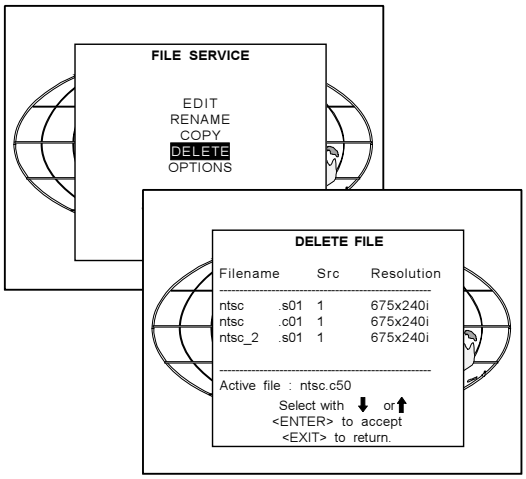


The first character is highlighted. Push the control disc to the right or to the left to select the desired character. Change that character by pushing the control disc up or down. Numeric characters can be entered directly with numeric keys on the RCU.
Press **ENTER** to confirm. The copied file is entered in the list of files.
Press **EXIT** to return to the Copy selection menu. No copies are made.



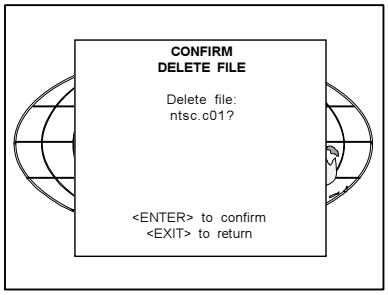
Delete

To delete a selected file out of the list of files.
Use the control disc to select DELETE and press **ENTER**. The delete selection menu will be displayed.



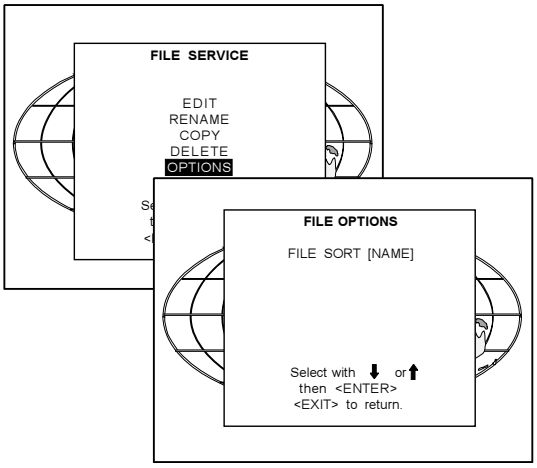
Push the control disc up or down to select a file and press **ENTER**. If [All] is selected, your password has to be entered before all files will be deleted.

A confirmation menu "Delete file 'file name'?" is displayed. When you want to delete the file, press **ENTER**. If you do not want to delete the file, press **EXIT**.
Note : the active file cannot be deleted.



File Options

Use the control disc to select OPTIONS and press **ENTER**. The option selection menu will be displayed.

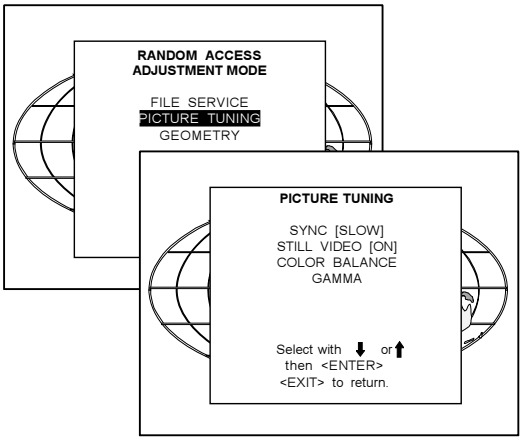


Press ENTER to toggle between [name] and [index]
[name] : The files in the file list will be sorted on the file name.
[index] : The files in the file list will be sorted on the file extension.

Picture Tuning

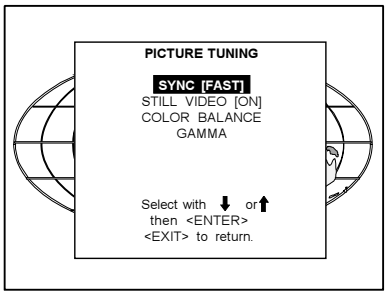
Highlight Picture Tuning by pushing the control disc up or down and press **ENTER** to select.
The Picture Tuning menu will be displayed.
The next items are available :

- sync slow/fast
- still video
- color balance
- gamma



Sync slow/fast

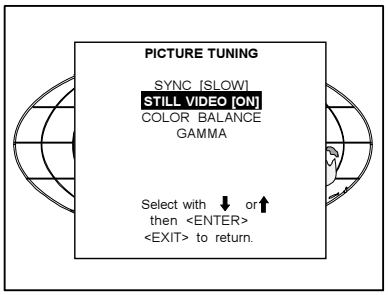
Highlight sync by pushing the control disc up or down and press **ENTER** to toggle between SLOW and FAST.



Still Video

This function is only used for stationary interlaced images.
Highlight Still Video by pushing the control disc up or down and press ENTER to toggle between ON and OFF.

Still Video : ON : the displayed image has more resolution and looks more quiet.
Still Video : OFF : for moving picture.



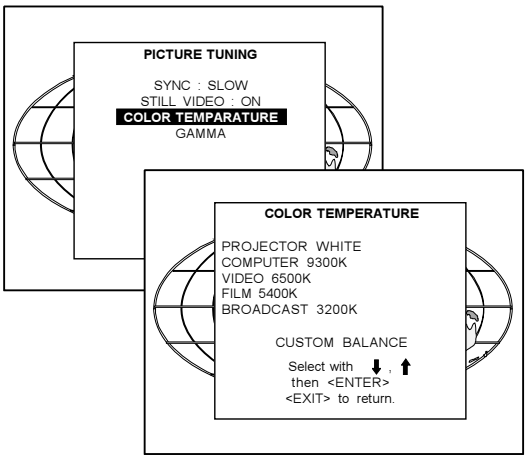
Color Temperature

Highlight Color Temperature by pushing the control disc up or down and press **ENTER** to select the color balance selection menu.

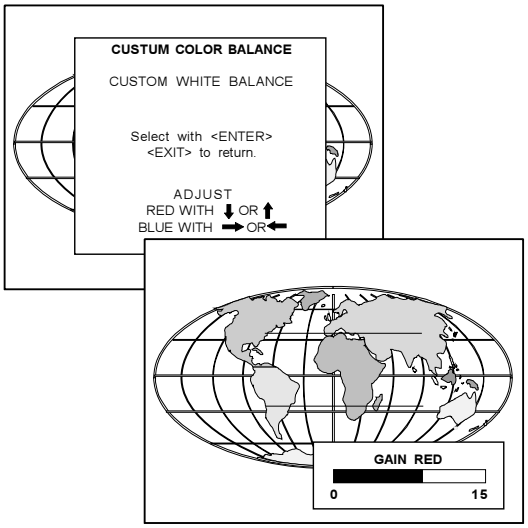
The next choices are possible :

- Projector white
- Broadcast 3200 K
- Film 5400 K
- Video 6500 K
- Computer 9300 K
- Custom balance.

Push the control disc up or down to select a fixed color temperature or custom balance.



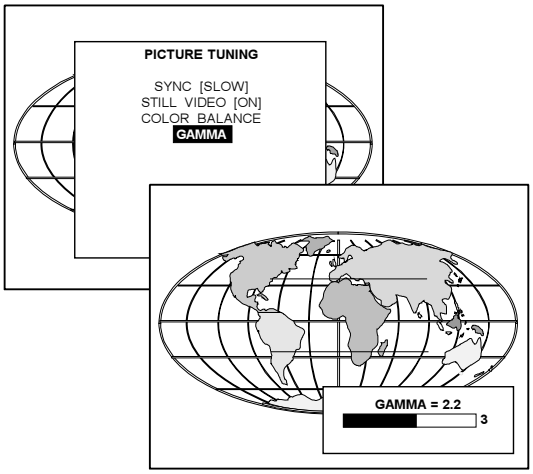
When Custom Balance is selected, the Custom Color Balance menu will be displayed.
Highlight Custom White Balance and press ENTER to select.
Push the control disc up or down to adjust red and push the control disc to the right or to the left to adjust blue (range 0 to 2.5) in comparison with the green color (value 1).



Gamma

With the gamma correction adjustment, it is possible to choose between higher color saturation (lower image values) and softer colors (higher gamma values).

To change the gamma value, highlight Gamma by pushing the control disc up or down and press ENTER.



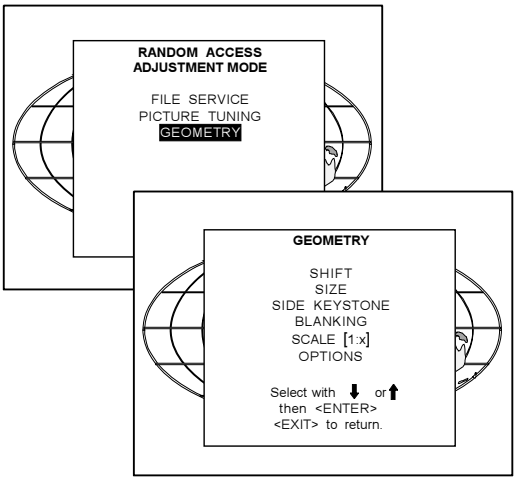
Geometry

Highlight Geometry by pushing the control disc up or down and press **ENTER** to select the geometry selection menu.
The following adjustment are possible :

- horizontal and vertical image shift.
- horizontal and vertical image size
- side keystone (only necessary if the projector is mounted at a non standard projection angle).
- blanking
- options

The following ways are possible to adjust a geometry function :

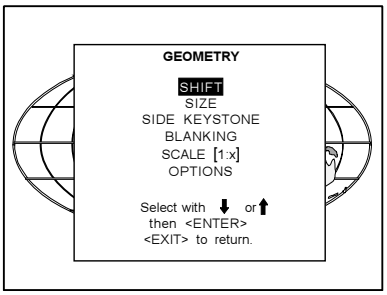
- using the control disc to adjust or
- entering the value with the digit keys. Therefore, press **ENTER** to select the indicated value and enter the desired value with the digit keys. Press **ENTER** to confirm the entered value.



Shift

Highlight Shift by pushing the control disc up or down and press **ENTER**.

The image can be shifted in a horizontal or vertical direction. Push the control disc up or down to shift the image in a vertical direction. Push the control disc to the right or to the left to shift the image in a horizontal direction. The default value for the shift is 0.
Shifting in a vertical direction : when the shift value is positive, the image is shifted upwards, when the value is negative, the image is shifted downwards.
Shifting in a horizontal direction : when the shift value is positive, the image is shifted to the right, when the value is negative, the image is shifted to the left.

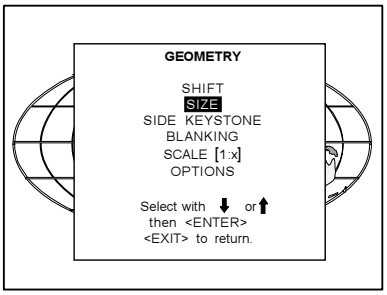


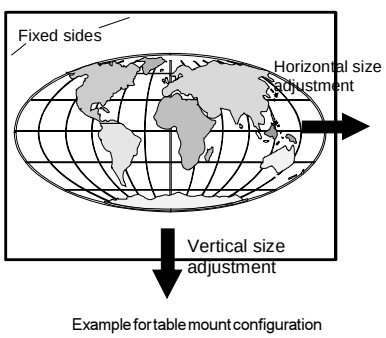
Size

Highlight Size by pushing the control disc up or down and press **ENTER** to select.

The size can be adjusted in a vertical or horizontal way.
When adjusting the vertical size,
The upper side of the image is fixed (table and ceiling mounted configurations) and only the lower side can be moved to its exact position.

When adjusting the horizontal size, the left side of the image is fixed and only the right side can be moved to its exact position.





Example for table mount configuration

Side Keystone

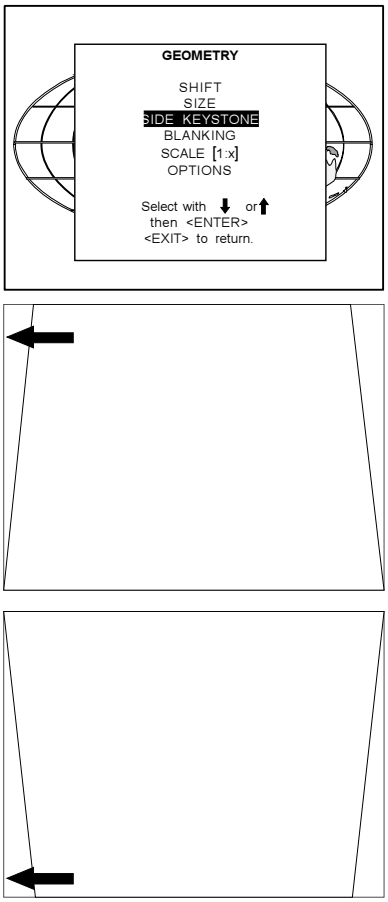
Highlight Side Keystone by pushing the control disc up or down and press ENTER to select.

The side keystone adjustment is used to align the image if the projector is mounted at a non standard projection angle.

Push the control disc to the right or to the left to adjust the keystone of the image.

When the upper part of the image is wider than the lower part of the image, push the control disc to the left. The number indication below the bar scale will be negative.

When the upper part of the image is smaller than the lower part of the image, push the control disc to the right. The number indication below the bar scale will be positive.



Blanking

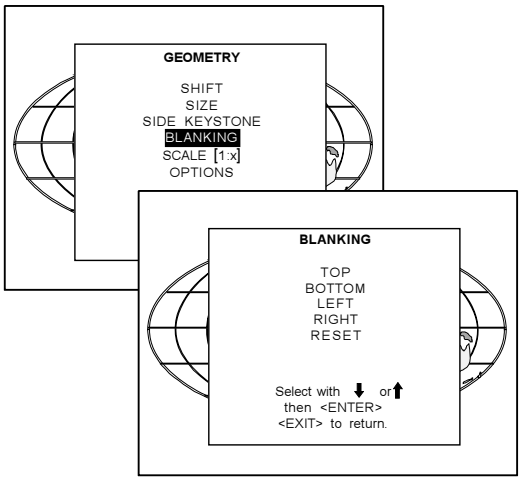
Highlight Blanking by pushing the control disc up or down and press ENTER to select.

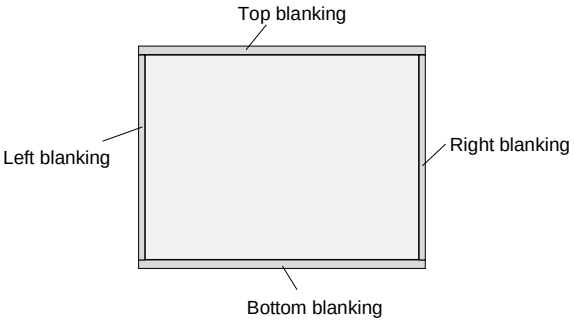
Blanking adjustments affect only the edges of the projected image and are used to frame the projected image on to the screen and to hide or black out unwanted information (or noise). A '0' on the bar scale indicates no blanking.

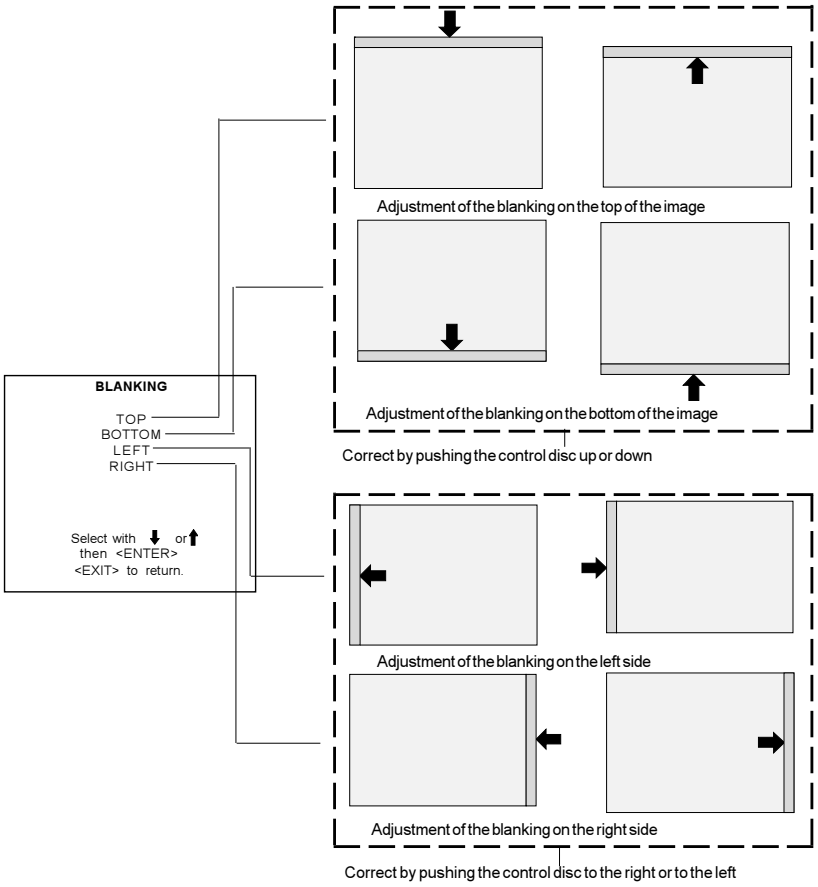
The following blanking corrections are possible :

- top blanking
- bottom blanking
- left blanking
- right blanking

When Reset is selected, the 4 blanking settings are set to zero. The saved settings are erased.

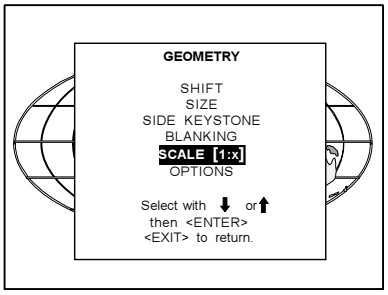





BLANKING
TOP
BOTTOM
LEFT
RIGHT
Select with ⬇ or ⬆
then <ENTER>
<EXIT> to return.
Adjustment of the blanking on the top of the image
Adjustment of the blanking on the bottom of the image
Correct by pushing the control disc up or down
Adjustment of the blanking on the left side
Adjustment of the blanking on the right side
Correct by pushing the control disc to the right or to the left

Scale [1:1]

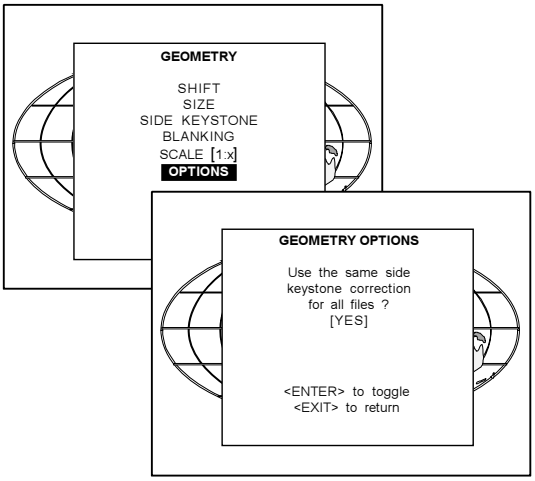
When 'scale 1:1' is selected, the real input signal without image conversion is displayed on the screen. Parts of the image cannot be displayed and will be lost.
Press ENTER to toggle between [1:1] and [1:x]. When toggled to [1:x] the full image will be displayed.



Options

Highlight Options by pushing the control disc up or down and press ENTER. The Geometry Options menu will be displayed.
The next question will be asked by the projector :
'Use the same side keystone correction for all files ? [YES] or [NO].
[YES] : the same keystone correction will be used for all installed files.
[NO] : the keystone has to be adjusted file per file.

Push the ENTER key to toggle between [YES] or [NO].
Press EXIT to return to the Geometry menu.



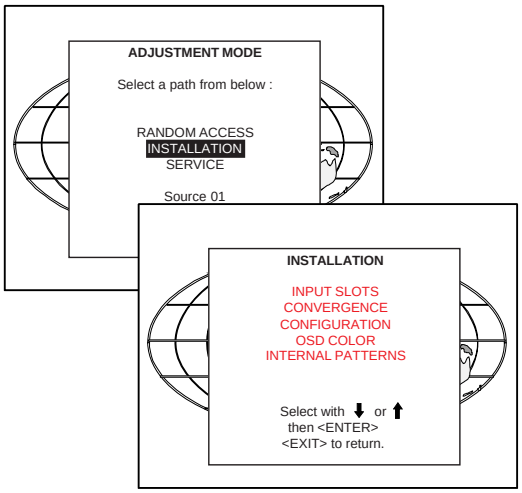
9 INSTALLATION MODE

Starting up the Installation Mode

Push the control disc up or down to highlight Installation and then press **ENTER**.

ENTER continues to the Installation mode selection menu.
EXIT returns to operational mode.
The following item can be selected in the Installation mode :

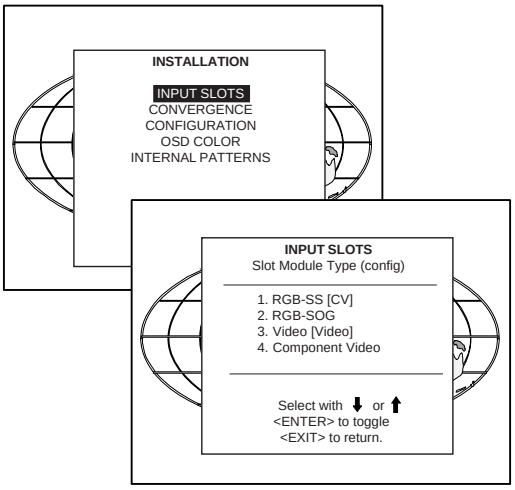
Input slots : to set up the input priority.
Convergence : to align the red, green and blue image.
Configuration : to set up the projector position.
OSD color : to change the color of the highlighted item.
Internal Patterns



Input Slots

Highlight Input Slots by pushing the control disc up or down and press **ENTER**.
The internal system will scan the input slots and displays the result in the Input Slots menu.

Source	indication
Video or S-Video	Video[Video] Video[S-Video]
RGB analog	RGB-SS[CV] : separate sync is composite video signal on H/C input RGB-SS[CS or HS&VS] : separate sync is composite sync or horizontal and vertical sync RGB-SOG : sync on green
Component video	Component Video - SS : component video with separate sync Component Video - SOY : component video with sync on Y Component Video - 3LSS : component video with 3 level separete sync. Component Video - 3LSOY : component video with 3 level sync on Y.
RGB analog with tri-level sync	RGB3L-SS : RGB with separate Tri level sync RGB3L-SOG : RGB with Tri level sync on green

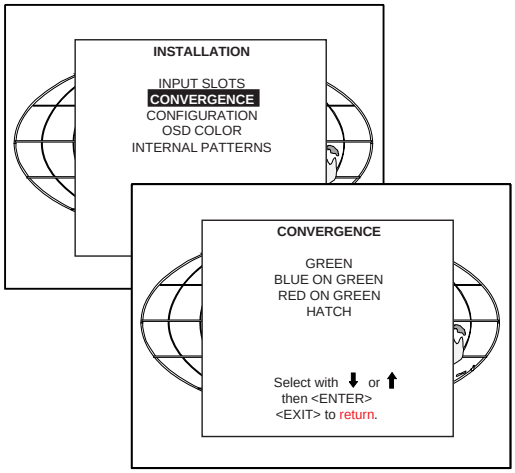


If a RCVDS (switched on) or VS05 is connected to the projector, it will be also indicated on the menu by adding *+800 peripheral*. If no 800 peripheral indication is made on the menu, there are still two possibilities :
- no RCVDS or VS05 connected or
- RCVDS is switched off.

When a 800 peripheral is connected to the projector, the input slots are not accessible with the control disc to toggle their function.

Convergence

Highlight *"Convergence"* by pushing the control disc up or down and press **ENTER** to display the convergence selection menu.
Every LCD panel has 6 adjustment screws. By turning these screws you change the relative position of the panels and converge the image.
Always start with the adjustment of the green panel. When the green image is correctly focused, it will later on be used as the reference image to converge the red and blue image.



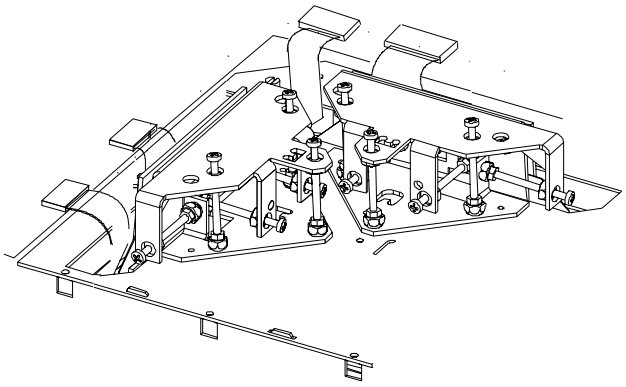
Next alignments have to be done :

You have to adjust the green panel until the indicated lines on the screen are focused (sharp lines). Continue with the red panel and adjust until the red lines coincide with the green lines. Than continue with the blue panel until the blue lines coincide with the green lines.

Follow the next procedure to adjust the LCD panels.

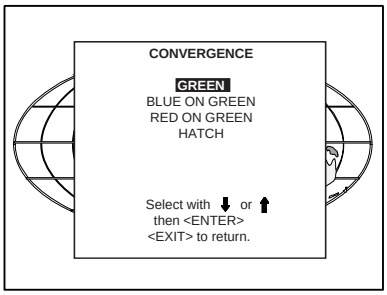
* Open the top cover as described in *Change password* in chapter *Service Mode*.

The three mounting parts for the LCD's (two are shown on the drawing below) are located on the black metal cover. The screws are indicated from 1 to 6 for each color.

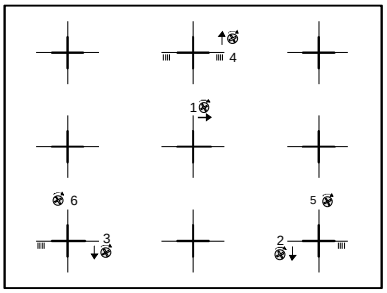


To adjust the convergence, there are test patterns provided in the convergence menu.

Use the control disc to hightlight *Convergence* and press **ENTER** to display the *Convergence* menu.
Start with the Green test pattern and continue with the Red on green and finish with the Blue on green.
Use the control disc to select *Green* and press **ENTER** to display the green pattern.



The pattern shows lines of one pixel.
Near six lines on the displayed pattern, a screw is drawn with a number next to it (e.g. if displayed in green = corresponding with the screws and numbers on the green LCD panel).
When turning a screw in the direction marked by the arrow above the displayed screw on the screen, the line on the screen moves in the direction of the straight arrow.



Green focusing

a. Adjust the projection lens until optimal focus for the lines 5 and 6 is obtained (hint : use the focusing marker lines next to the indicated points)

b. Turn screw 4 for optimal focus of the corresponding green line 4 on the screen.

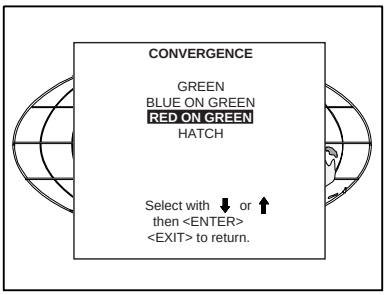
c. Turn screw 5 for optimal focus of the corresponding green line 5 on the screen.

d. Turn screw 6 for optimal focus of the corresponding green line 6 on the screen.

The three alignments influence each other, therefore repeat if necessary the above three steps (b,c and d).
When the green pattern is correctly focused, press **EXIT** to return to the *Convergence* menu.

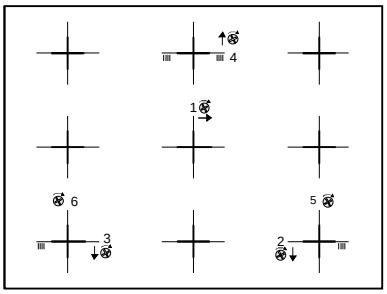
Red on green convergence.

Use the control disc to hightlight *Red on green* and press **ENTER** to display the Red on green test pattern.
The longest lines are the red lines. These lines must be converged with the green lines.
The drawn screws and numbers are displayed in red.



Follow next steps :
a. Adjust first screws 4, 5 and 6 to obtain an optimal focus for respective lines 4, 5 and 6.

Due to interaction, it may be necessary to repeat step a several times.



Follow next steps to converge the red lines with the green lines :

b. Start with screw 2 and adjust for optimal convergence of line 2.

c. Adjust screw 3 for optimal convergence of line 3.

Due to interaction repeat above two steps (b and c) if line 2 and possibly line 3 is misaligned.

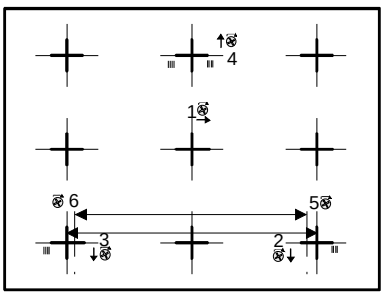
If both lines are correctly converged, continue with screw 4.
Adjust screw 4 until line 4 is correctly converged. It is possible that line 2 and 3 have to be reconverged. If so, repeat procedure for screw 2 and 3 (step b and c)

If line 2, 3 and 4 are converged, continue with line 1 (screw 1).

When line 1 is converged, check again the convergence of lines 2, 3 and 4. If necessary repeat the above procedure for the corresponding lines.

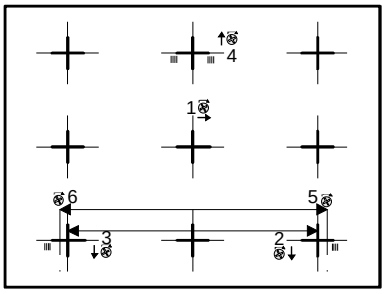
Check if lines 5 and 6 are correctly converged. If so, press **EXIT** to return to the *Test pattern* menu and continue with Blue on green.
If not yet correctly converged, check the distance between lines 5 and 6 of the red pattern and the distance between lines 5 and 6 of the green lines.

Two possibilities :



1) distance between red lines is smaller than distance between green lines.
Turn screw 5 and 6 clockwise until distance between lines 5 and 6 is the same for the red and green lines.

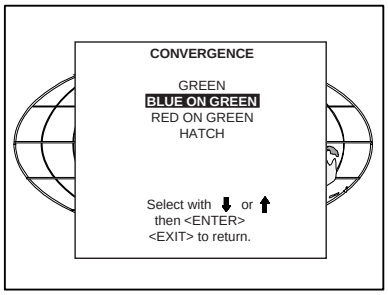
2) distance between red lines is greater than distance between green lines.
Turn screw 5 and 6 counter clockwise until distance between lines 5 and 6 is the same for the red and green lines.



Due to this movement the lines 1, 2, 3 and 4 may be out of convergence. Repeat the above mentioned steps for the respective lines.
If all lines are correctly converged, press **EXIT** to return to the *Test pattern* menu.

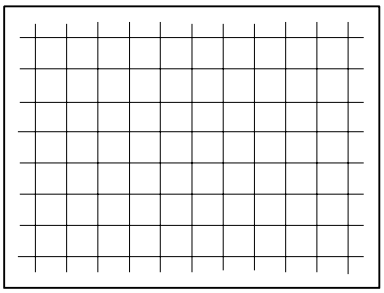
Blue on green convergence.

Use the control disc to highlight *Blue on green* and press **ENTER** to display the Blue on green test pattern.



Repeat the same procedure as for Red on green lines but read blue when red is indicated.

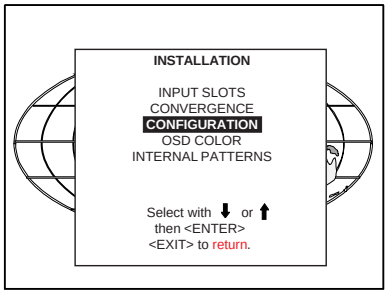
To check the result of the convergence adjustments, highlight *Hatch* and press **ENTER**. A hatch pattern will be displayed on the screen.
ENTER : displays a hatch pattern.
EXIT : returns to the installation menu.
All lines must be displayed in white, if not so repeat the convergence adjustment procedure.



Configuration

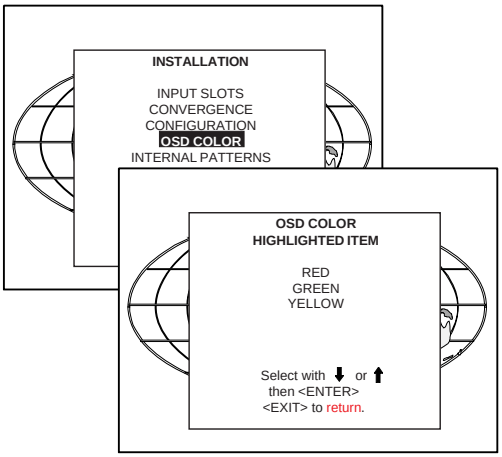
Highlight "Configuration" by pushing the control disc up or down and press **ENTER** to select.

For more information, see Projector configuration in chapter 4 : 'Installation Set Up'.



OSD color (On-Screen Display)

The highlighted items on the menus can be displayed in red, green or yellow.
To change this color setting, highlight "OSD Color" by pushing the control disc up or down and press **ENTER** to display the OSD Color menu.

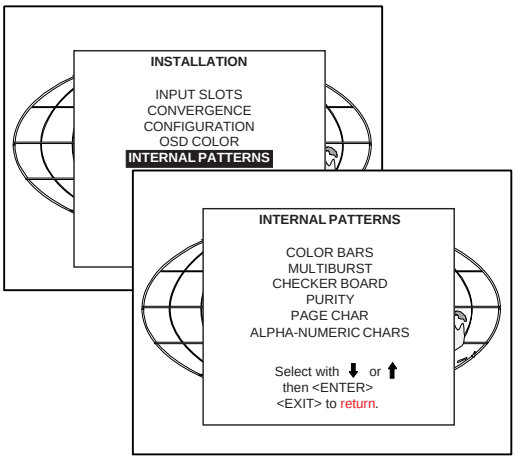


Internal Patterns

The projector is equipped with different internal patterns which can be used for measurment purposes.
Highlight "Internal Patterns" by pushing the control disc up or down and press **ENTER** to display the Internal Pattern selection menu.
The following test pattern are available :

- Color Bars
- Multiburst
- Checker Board
- Purity
- Page Char (one page with the same character)
- Alpha-numeric characters

Each pattern (except Purity) can be inverted by pressing **ENTER**.
For Page Char, the next or previous character can be selected by pushing the control disc up or down.
To return to the normal pattern, press **EXIT**.



10 SERVICE MODE

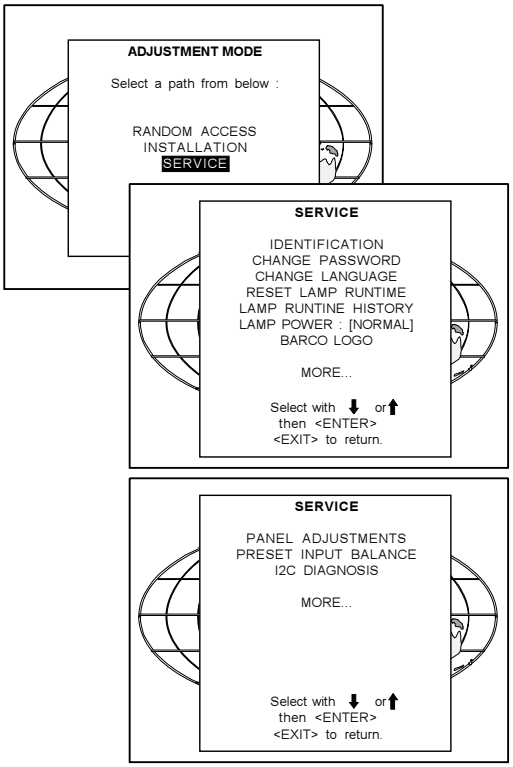
Starting up the Service Mode

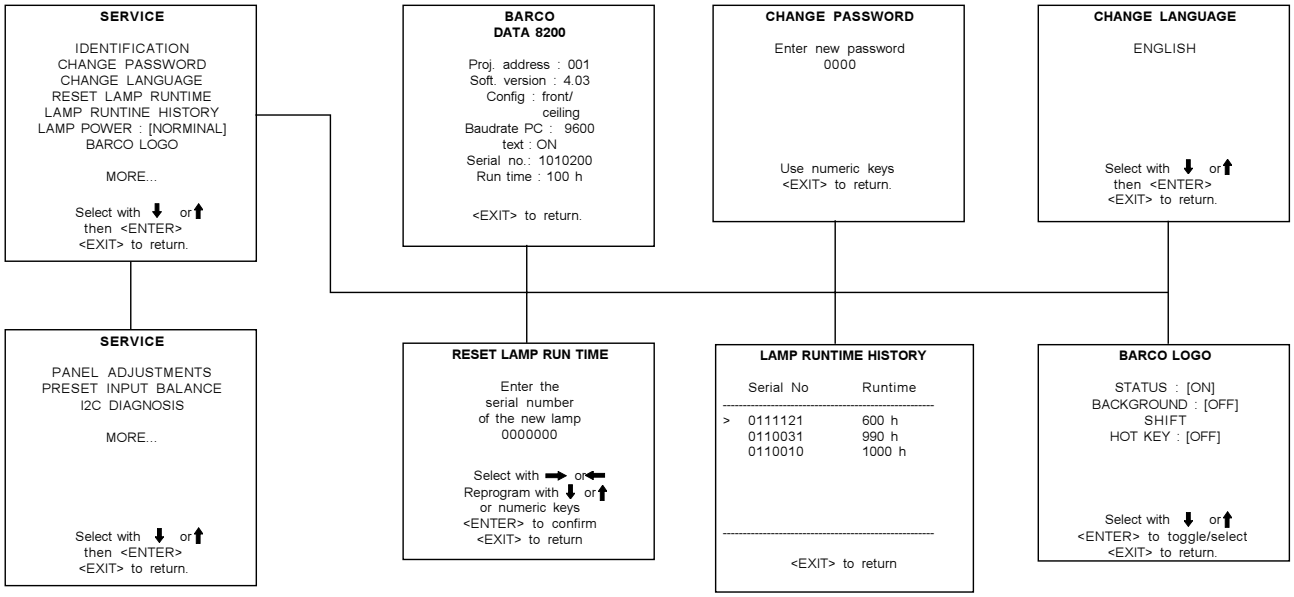
Push the control disc up or down to highlight Service and then press **ENTER**.

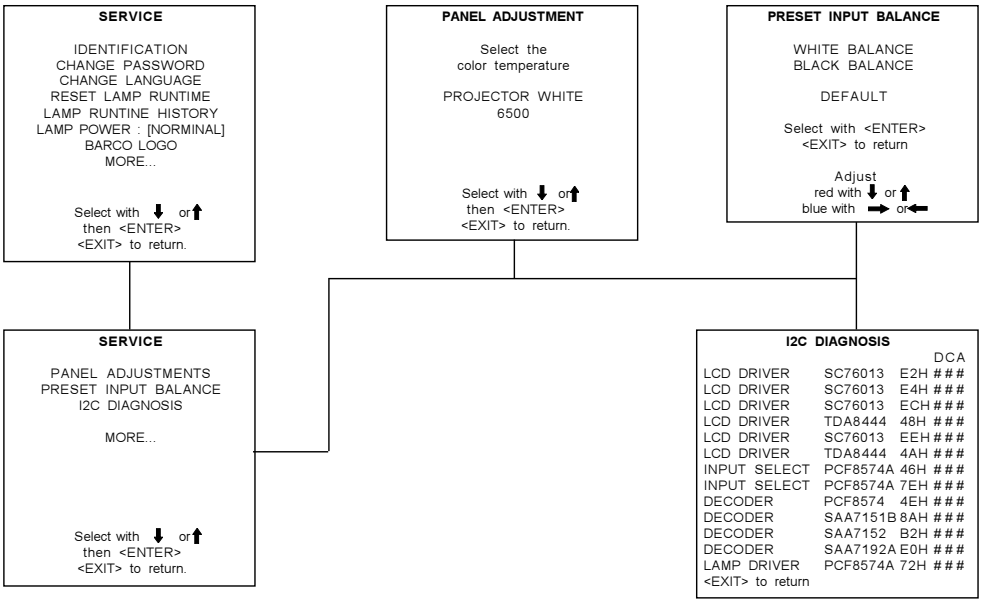
Some items in the Service mode are password protected (when the password function is active). Enter your password to continue. All other password protected items are now available if you stay in the adjustment mode.

The service menu is built-up in two parts which are connected together with the 'more' item.
If the disered item is not in the list of the displayed menu, select more with the control disc and push **ENTER** to display the other items in the service menu.

ENTER continues to the Service mode selection menu.
EXIT returns to operational mode.

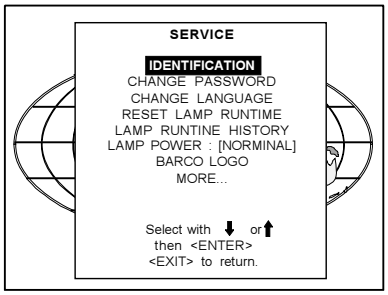






Identification

To display the Identification screen, push the control disc up or down to highlight *Identification* and press **ENTER** to display the *Identification* screen.



The Identification screen gives an overview of :
- type of projector
- projector address
- software version
- installation configuration
- baud rate
- text ON
- projector serial number
- projector run time

- *type* of projector : BARCODATA 8200

- *software version*

- *Proj. Address* : to change the address of the projector, see Change Projector Address in this chapter.

- *Installation* : possible installations :

- Front/Ceiling
- Front/Table
- Rear/Ceiling
- Rear/Table

To change the installation configuration follow the instructions in chapter Installation Set Up.

- *Baud rate* : transfer speed for communication with a IBM PC (or compatible) or MAC. The baud rate of the projector must be the same as the baud rate of the connected computer. When there is a difference, consult 'Change Baudrate PC' in this chapter.

- *Projector Run Time* : gives the total run time since the first start up. All projectors leave the factory with a run time of approximately 24 hours.

- *Projector Serial number* : indicates the fabrication number of the projector. This number can be useful when calling for technical assistance.

Change Password

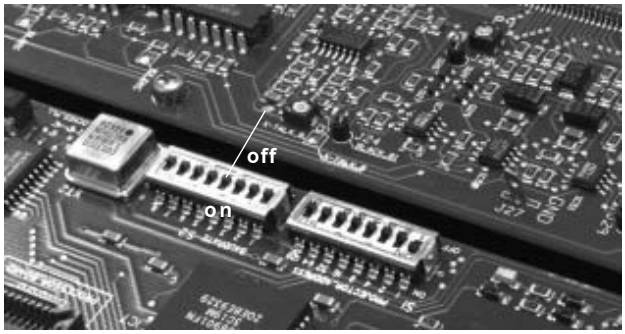
This item is password protected when the password strap is installed.

How to enable or disable the password function ?

The password function can be hardware set with a DIP switch on the CPU module. To change the position of this DIP switch, it is necessary to open first the top cover (see Set up of the baud rate for communication with a computer, chapter Connections).
When DIP switch 4 (S2) is in the :

- ON position, password is activated.

-OFF position, password not activated, service mode is free accessible.



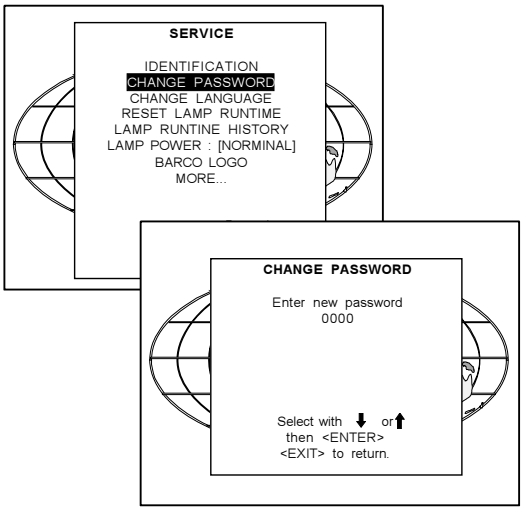
How to change the password ?

Highlight Change password by pushing the control disc up or down and press **ENTER** to display the Change Password menu.

> **ENTER** displays the Change Password menu
> **EXIT** returns to the adjustment selection menu.
> **ADJUST** returns to operational mode.

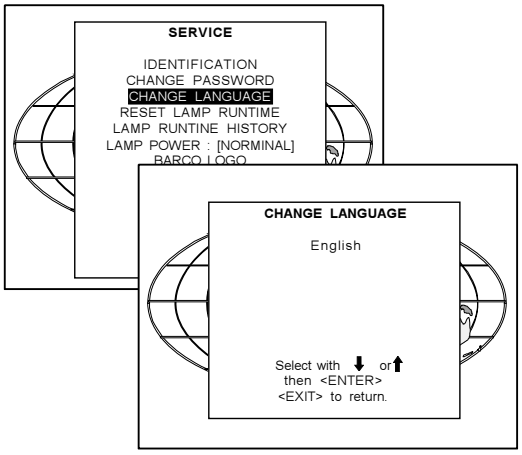
The old password is displayed and can be changed by entering the digit with the numeric keys of the RCU or local keypath.

Press ENTER to save the new entered password.
Press EXIT if no changes have to be made.



Change Language

Highlight Language by pushing the control disc up or down and press ENTER to select the Language Selection menu.
Available languages : English

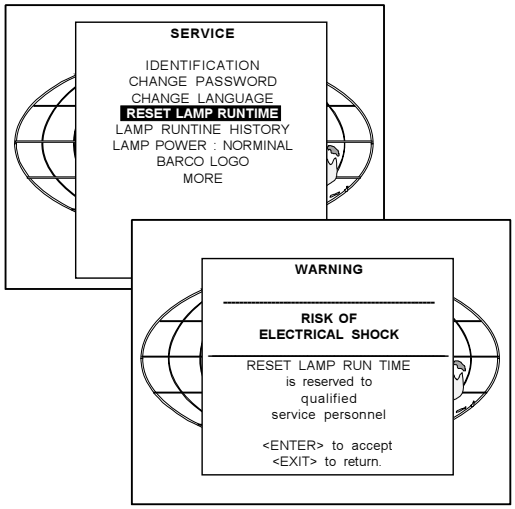


Reset Lamp Runtime

Reset lamp run time is only allowed when a new lamp is installed.
Highlight Reset Lamp Run Time by pushing the control disc up or down and press **ENTER** to select.

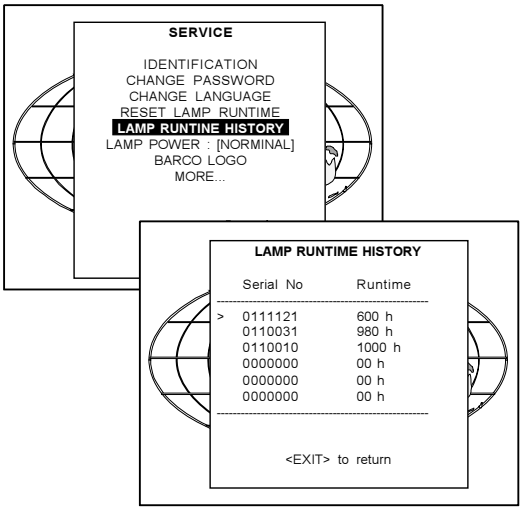
When Reset Lamp Run Time is selected in the Service Mode selection menu, the following warning will be displayed :

Risk of electrical shock. Reset lamp run time is reserved to qualified service personnel.
If you are not qualified, press **EXIT** to cancel the reset operation.



Lamp Run Time History

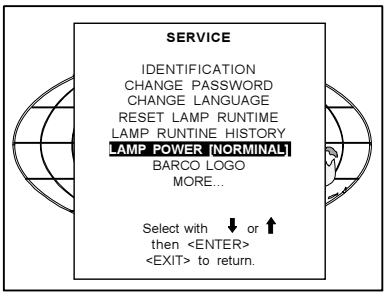
To get an overview of the different lamp run times, highlight Lamp Run Time History by pushing the control disc up or down and press **ENTER**.
A listing with the lamp serial number and the corresponding run time will be displayed.
The actual installed lamp will be marked.
Press **EXIT** to return to the service mode selection menu.



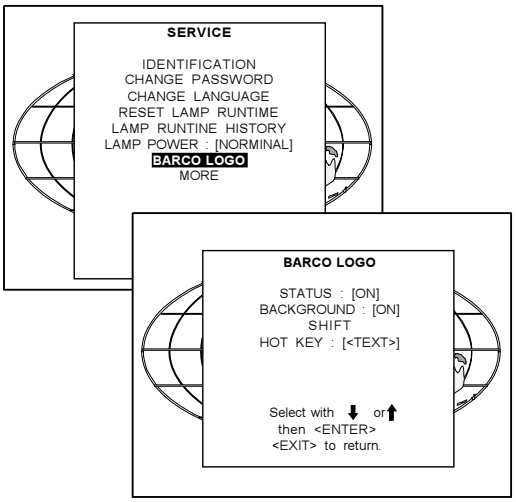
Lamp Power Mode

The lamp can be driven in two different modes : NORMINAL or BOOST.

Highlight Lamp Power by pushing the control disc up or down to select the Lamp Power.
Press ENTER to toggle between NORMINAL and BOOST.



BARCO logo



The BARCO logo can be added to the image, in overlay or on a background, on any place on the screen.
To add the BARCO logo or to change a setting in the BARCO logo menu, highlight 'BARCO logo' by pushing the control disc up or down and press **ENTER** to select.
The BARCO logo menu will be displayed on the screen. Within this menu, three toggle settings and a shift control are available.

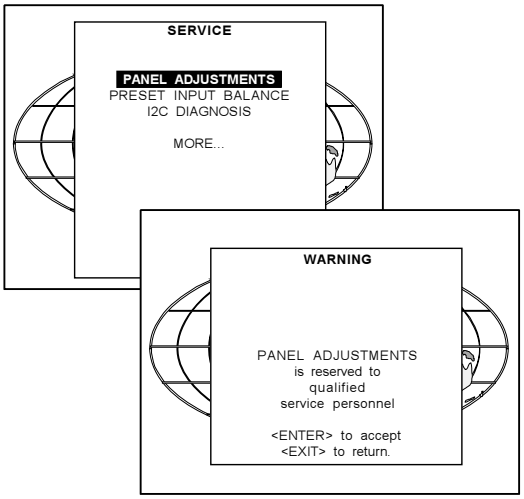
STATUS [ON/OFF]
ON : BARCO logo will be displayed on the screen.
OFF : No BARCO logo displayed on the screen.

BACKGROUND [ON/OFF]
ON : BARCO logo will be displayed on a black background.
OFF : BARCO logo will be displayed without any background.

SHIFT
By pushing the control disc up, down, to the left or to the right, the BARCO logo can be positioned anywhere on the screen.

HOT KEY [TEXT/OFF]
OFF : no key on the RCU is used to display the BARCO logo.
TEXT : the TEXT key on the RCU is used to display or to remove the BARCO logo with one single push on this key (only in operational :mode).

Panel Adjustments



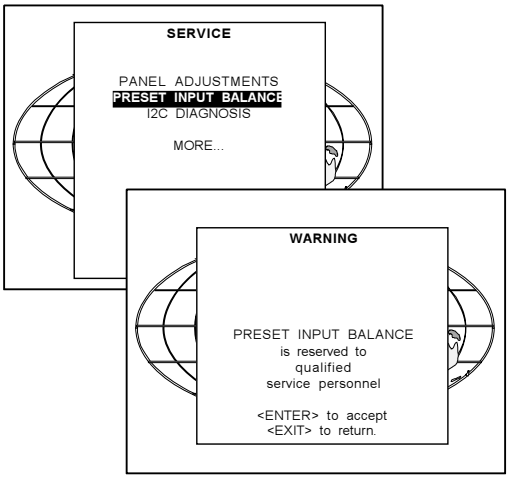
Changing these settings may seriously affect the performance of the projector.
All panel adjustments are factory adjusted. If not really necessary, do not touch any of these adjustments. They are useful when a new panel is installed.

Highlight Panel Adjustments by pushing the control disc up or down and press **ENTER**

When Panel Adjustments is selected in the Service Mode selection menu, the following warning will be displayed :

Panel Adjustments is reserved to qualified service personnel.
If you are not qualified, press EXIT to cancel the panel adjustments.

Preset Input Balance



Changing these settings may seriously affect the performance of the projector.
All Input Balances are factory adjusted. If not really necessary, do not touch any of these adjustments. They are useful when a new panel is installed.

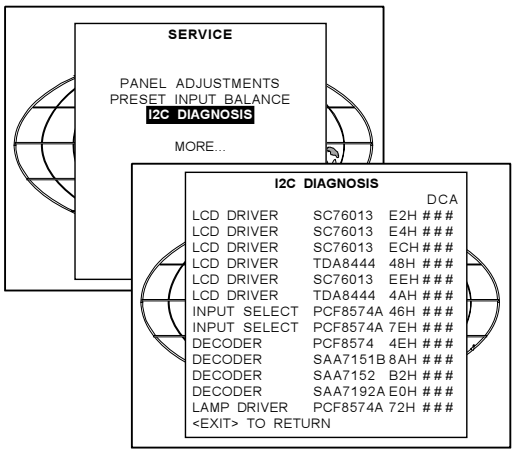
Highlight Preset Input Balance by pushing the control disc up or down and press **ENTER**

When Preset Input Balance is selected in the Service Mode selection menu, the following warning will be displayed.

Preset Input Balance is reserved to qualified service personnel.
If you are not qualified, press EXIT to cancel the Input balance adjustments.

I2C diagnosis.

Gives an overview of the correct working of the I²C controlled IC's. Highlight I2C diagnosis by pushing the control disc up or down and press **ENTER** to display the overview.



A STANDARD SOURCE SET UP FILES

Standard source set up files.

Standard preprogrammed set up files.

NAME	RESOLUTION	FVERT Hz	FHOR kHz	FPIX MHz	PTOT	PACT	LTOT	LACT
CGA	640 X 200	59,924	15,700	14,318	912	640	262	200
NTSC	675 X 240I	29,970	15,734	13,500	858	675	263	240
NTSC_2	675 X 240I	29,970	15,734	13,500	858	675	263	240
PAL	675 X 278I	25,000	15,625	13,500	864	675	313	278
PAL_2	675 X 278I	25,000	15,625	13,500	864	675	313	278
SECAM	675 X 278I	25,000	15,625	13,500	864	675	313	278
SECAM_2	675 X 278I	25,000	15,625	13,500	864	675	313	278
EGA	640 X 350	59,702	21,851	16,257	744	640	366	350
MAC_5	512 X 342	60,158	22,259	15,670	704	512	370	342
MAC_3	512 X 384	60,147	24,480	15,667	640	512	407	384
MAC_4	560 X 384	60,147	24,480	17,234	704	560	407	384
8514-A	1024 X 384I	43,479	35,522	44,900	1264	1024	409	384
VGA_TXT	720 X 400	70,087	31,469	28,322	900	720	449	400
COMPUSC4	1024 X 480I	29,945	30,694	39,779	1296	1024	512	480
VGA_72V	640 X 480	72,800	37,856	31,496	832	640	520	480
VGA_GR	640 X 480	59,941	31,469	25,175	800	640	525	480
VGA75ISO	640 X 480	75,000	39,375	31,500	800	640	525	480
MAC_2	640 X 480	66,667	35,000	30,240	864	640	525	480
MAC_LC	640 X 480	66,619	34,975	31,338	896	640	525	480
MUSE	960 X 518I	30,000	33,750	37,125	1100	960	563	518
HDMAC	1008 X 570I	25,020	31,250	39,125	1252	1008	625	570
SVGA_56V	800 X 600	56,250	35,156	36,000	1024	800	625	600
SVGA_60V	800 X 600	60,317	37,879	40,000	1056	800	628	600
SVGA_72V	800 X 600	72,084	48,080	50,003	1040	800	667	600
XGA_70V	1024 X 768	69,705	56,182	74,610	1328	1024	806	768
XGA_60	1024 X 768	60,000	48,360	64,996	1344	1024	806	768
XGA_75	1024 X 768	75,781	61,080	86,000	1408	1024	806	768
XGA_72	1024 X 768	71,955	58,140	80,000	1376	1024	808	768
SUP_MAC	1024 X 768	60,000	48,780	63,999	1312	1024	813	768

Name : name of file, contains the settings Resolution : image resolution, when followed by ...I means interlaced.

FVERT Hz : vertical frequency of the source

FHOR kHz : horizontal frequency of the source.

FPIX MHz : pixel frequency

PTOT : total pixels on one horizontal line

PACT : active pixels on one horizontal line

LTOT : total lines in one frame

LACT : active lines in one frame

NAME	RESOLUTION	FVERT Hz	FHOR kHz	FPIX MHz	PTOT	PACT	LTOT	LACT
XGA_70	1024 X 768	70,000	57,050	78,044	1368	1024	815	768
MAC_POR	640 X 870	74,996	68,846	57,280	832	640	918	870
INTER_GR	1184 X 886	67,170	61,796	92,941	1504	1184	920	886
SG_60_2	1024 X 768	60,000	48.780	64,390	1320	1024	812	768
SG_60_3	960 X 680	60,000	43,200	54,432	1260	960	720	680

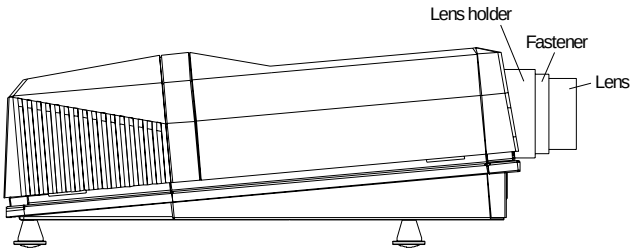
B LENSES

Focusing the lens

Loosen the fastener ring of the lens by turning counter clockwise.

Focus the image by turning the lens barrel to the left or the right. Attention : Do not turn out the lens too far, otherwise it will fall out of the lens holder.

When the image is focused, secure the correct position of the lens with the fastener ring by turning this ring clockwise.



Lens Cleaning Procedure

Cleaning procedure for HD(1.5-3:1) lens and HD(3-5.3:1) lens.

To minimize the possibility of damaging the optical coating or scratching exposed lens surface, we have developed recommendations for cleaning the lens. FIRST, we recommend you try to remove any material from the lens by blowing it off with clean, dry deionized air. DO NOT use any liquid to clean the lenses.

A Toraysee™ cloth is included with the lens kit.

Proceed as follows :

1. Always wipe lenses with a CLEAN Toraysee™ cloth.

2. Always wipe lenses in a single direction. Do not wipe back and forward across the lens surface as this tends to grind dirt into the coating.

3. Do not leave cleaning cloth in either an open room or lab coat pocket, as doing so can contaminate the cloth.

4. If smears occur when cleaning lenses, replace the cloth. Smears are the first indication of a dirty cloth.

5. Do not use fabric softener when washing the cleaning cloth or softener sheets when drying the cloth.

6. Do not use liquid cleaners on the cloth as doing so will contaminate the cloth.

Order number for a new Toraysee™ cloth : R379058.
Other lenses can also be cleaned safely with this Toraysee™ cloth.
Cleaning procedure for the other HD lens

To minimize the possibility of damaging the optical coating or scratching exposed lens surfaces, we have developed recommendations for cleaning lenses. **FIRST**, we recommend you try to remove any material from the lens by blowing it off with deionized air or ***lightly*** brushing it with a soft, camel's hair brush.

Plastic lens with multilayer coatings & all glass lens elements.

1. **DO NOT** spray any type of fluid directly on the lens surface.

2. **DO NOT** use any dry material to clean the surface (dry rag, tissue, etc.)

3. Use a commercial liquid window cleaner. ***DO NOT use an aerosol.*** Other cleaning agents, such as laboratory-grade acetone or a 70-30 mixture of ethyl ether and ethyl alcohol may also be used. If you are not sure of the cleaning agent, experiment with a small area of the lens first.

4. Use a soft cotton cloth (cotton diapers laundered several times to remove sizing) or any soft facial tissue (Charmin, Softweve, etc.).

5. When using window cleaner, ***moisten the cloth or tissue*** and lightly wipe the surface. Then lightly dry with a new tissue.

6. When using acetone or ethyl ether mixture, proceed as follows : Fold the cloth or tissue several times to form a pad. Soak the folded end of the pad in the acetone. Starting at the diameter opposite you, immediately wipe the coated lens, with very little pressure, toward you in a straight line and off the lens. Do not stop with the tissue on the lens. Wipe at a speed that is equal to the evaporation rate. This is very important to prevent streaking and spotting. Start your wiping at one side of the lens and, with successive wipes, move to the other side. Turn the pad over for each wipe, then inside out. Do not make more than one wipe per clean area of pad. Be careful of the painted edge, since acetone will soften it.

Lenses

Name	Length lens mm (inch)	diam. lens mm (inch)	weight kg (lbs)	order number
HD(1.2:1)	253 (9.96)	189 (7.44)	8.7 (19.2)	R9829200
HD(2.2:1)	235 (9.25)	137 (5.39)	7.5 (16.5)	R9829060
HD(3.3:1)	149 (5.87)	152 (5.98)	4.3 (9.5)	R9829075
HD(4.0:1)	165 (6.50)	152 (5.98)	3.5 (7.7)	R9829145
HD(5:1)	238 (9.37)	164 (6.46)	5.1 (11.2)	R9829180
HD(7:1)	373 (14.68)	196 (7.72)	12.0 (26.4)	R9829090
HD(1.5-3:1)	460 (18.11)	260 (10.24)	13.0 (28.7)	R9829150
HD(3-5.3)	578 (22.8)	225 (8.9)	15.0 (33.1)	R9829190
HD(0.9)*	366 (14.4)	216 (8.5)	10.0 (22.0)	R9829550

Lens formulas to calculate the projector distance.

HD(1.2:1)	Metric	PD=1.264 x SW + 0.126 + (0.018/SW)
	Inch	PD= 1.264 x SW + 4.961 + (27.90/SW)
HD(2.2:1)	Metric	PD=2.0566 x SW + 0.16 + (0.029/SW)
	Inch	PD=2.0566 x SW + 6.299 + (44.95/SW)
HD(3.3:1)	Metric	PD=3.33 x SW + 0.386 + (0.046/SW)
	Inch	PD=3.33 x SW + 15.19 + (71.30/SW)
HD(4.0:1)	Metric	PD=4.02 x SW + 0.50 + (0.06/SW)
	Inch	PD=4.02 x SW + 19.69 + (93/SW)
HD(5:1)	Metric	PD=5 x SW + 0.747 + (0.070/SW)
	Inch	PD=5 x SW + 29.41 + (108.5/SW)
HD(7:1)	Metric	PD=6.911 x SW + 1.414 + (0.096/SW)
	Inch	PD=6.911 x SW + 56.06 + (148.8/SW)
HD(1.5-3:1)	Metric	PDmin=1.49 x SW + 0.123 PDmax=2.983 x SW + 0.145
	Inch	PDmin=1.49 x SW + 4.84 PDmax=2.983 x SW + 5.71
HD(3-5.3:1)	Metric	PDmin=3.126 x SW - 1.08 ± 0.2 PDmax=5.345 x SW ± 0.2
	Inch	PDmin=3.126 x SW - 42.52 ± 8 PDmax=5.345 x SW ± 8
HD(0.9:1) *	Metric	PD=0.83 x SW + 0.20
	Inch	PD=0.83 x SW + 7.874

recommanded screen width range: 1.2 m < SW < 3.20 m / 47 inch < SW < 126 inch

* ON-AXIS lens, requires an on-axis projector or a retrofitted kit off -> on-axis (Ord. no. R808459K)

C SOURCE NUMBERS 80 - 89 AND 90 - 99

Projector without any 800 peripheral connected.

The source numbers 80 - 89 and 90 - 99 do not correspond to physical inputs. An additional adjustment file can be created for these source numbers. This file can contain different settings. The relationship between sources 0 - 9 and 90 - 99 or between 0 - 9 and 80 - 89 is shown in the diagram below.

source input 1	source number 1	file A
	source number 81	file A'
	source number 91	file A''
source input 2	source number 2	file B
	source number 82	file B'
	source number 92	file B''
source input 3	source number 3	file C
	source number 83	file C'
	source number 93	file C''
source input 4	source number 4	file I
	source number 84	file I'
	source number 94	file I''

Follow the steps below to create a second or a third file for sources 0 to 4 :

1. Select the source between 0 and 4.

2. Select the corresponding source number between 81 and 84 and between 91 and 94 with the digit keys on the RCU.

3. Enter the adjustment mode and load a corresponding file. Edit this file if necessary.

4. Save the file and exit the adjustment mode.

Projector with a 800 peripheral connected.

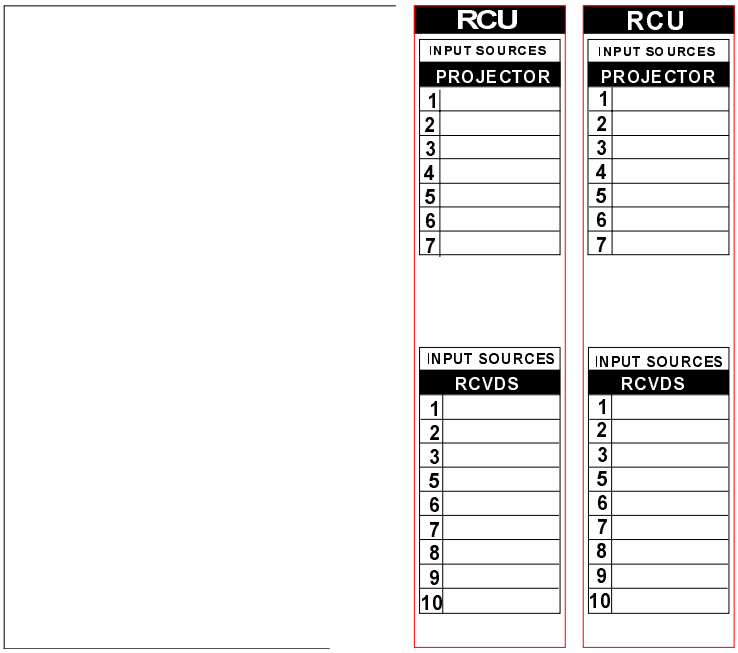
Source numbers 90 - 99.
The source numbers 90 - 99 do not correspond to physical inputs. An additional adjustment file can be created for these source numbers (source numbers of the 800 peripheral). This file can contain different settings. The relationship between sources 0 - 9 of the 800 peripheral and 90 - 99 is shown in the diagram below.

source input 1	source number 1	file A
	source number 91	file A'
source input 2	source number 2	file B
	source number 92	file B'
source input 3	source number 3	file C
	source number 93	file C'
	•	
	•	
source input 9	source number 9	file I
	source number 99	file I'

Follow the same procedure as for a projector without a 800 peripheral connected.

Source numbers 81 - 84
Only valid if no input module is connected to slot 81 - 84 of a RCVDS05.
The source numbers 81 - 84 correspond to the physical inputs 1 - 4 of the projector.
e.g. When slot 1 of the projector has to be selected, key in source number 81.
The relationship between the sources of slot 1 - 4 of the projector with 800 peripheral is shown in the table below.

source of slot 1	source number 81
source of slot 2	source number 82
source of slot 3	source number 83
source of slot 4	source number 84


RCU
INPUT SOURCES
PROJECTOR
1
2
3
4
5
6
7
INPUT SOURCES
RCVDS
1
2
3
5
6
7
8
9
10
RCU
INPUT SOURCES
PROJECTOR
1
2
3
4
5
6
7
INPUT SOURCES
RCVDS
1
2
3
5
6
7
8
9
10